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Topic 1: Fit for purpose / work ready / transition to practice

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Abstract

The Department of Health announced an Independent Review of Nursing Education – Educating the Nurse of the Future (the Review) as a measure in the 2018/19 Federal Budget in May 2018. This is the first of 4 literature reviews to inform the Review. The results of these literature reviews prompt and inform discussion about particular issues. This literature review focusses on fitness for purpose, work readiness, and transition to practice. These are important issues for policy development and decision-making about the future of nursing education in Australia.

Keywords

1:, work, ready, transition, fit, purpose, topic, /, practice

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Australian Government
Department of Health

Topic 1

Fit for purpose / work ready / transition to practice

Literature reviews to support the Independent Review of Nursing Education – Educating the Nurse of the Future

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All contributors are individually listed in Appendix 1 of this document.

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Abbreviations

Abbreviation	Definition
EN	Enrolled Nurse
NCSBN	National Council of State Boards of Nursing
NCLEX	National Council Licensure Examination
NMBA	Nursing and Midwifery Board of Australia
NP	Nurse Practitioner
RN	Registered Nurse

Key messages

At the core of Topic 1 is the concept of a new-graduate nurse (RN, EN or NP) being 'fit for purpose'. The focus is on the point at which they take up the role for which they recently qualified, which may or may not include a period of prior work in the nursing workforce. Although standards of practice exist for ENs, RNs and NPs, these are broad descriptors of appropriate practice. There is no prescribed core skill set for ENs, RNs or NPs in Australia. Except where stated, the key messages arising from this review are all about registered nurses.

Fit for purpose / work ready / transition to practice

- The term 'reality shock' was coined 45 years ago to describe the 'shock' experienced by nursing students when they join the workforce and realise they have not been adequately prepared for the work that awaits them.[1] This phenomenon remains today.
- Lack of work readiness has been described by new-graduate nurses and their colleagues and managers, but the research has largely failed to explore this in sufficient detail to be useful in designing appropriate interventions to improve particular skills, knowledge or attributes.
- In addition to their professional education, transition from student to clinician is influenced by the personal characteristics of each nurse (e.g. prior experience, resilience), their interpersonal relationships with colleagues (which may include incivility and bullying), and the context within which they work (e.g. staffing levels, rostering). The skills, knowledge and attributes that each nurse brings to the workplace is only one component of being able to function effectively.
- Research on work readiness has largely relied on surveys, interviews or focus groups to investigate the perceptions of new-graduate nurses about their own skills and knowledge, or the perceptions of their colleagues. There has been limited use of reliable, validated, tools to measure work readiness or transition.

Utilisation of independent external assessments such as pre-registration examinations

- The NCLEX-RN examination has been used throughout the US for many years as a standardised examination prior to registration. No studies were identified which demonstrated that the NCLEX improved the skills, knowledge and attributes of new-graduate RNs. Much of the focus of the literature is about how to pass the exam and the importance of pass rates for nursing faculties.

Utilisation of pre requisites for entry to pre-registration programs

- There is very limited research, particularly from Australia, on using pre-requisites for entry to pre-registration programs to improve the skills, knowledge and attributes of students completing university-based nursing programs. However, various pre-requisites have been reported in the literature (e.g. previous academic achievement; previous studies in science; proficiency in English).

Transition programs

- The structure and content of transition programs reported in the literature vary widely, making it almost impossible to aggregate findings about program effectiveness and to 'separate out' what improvements may be due to the transition programs and what may be due to other factors.

- Studies of transition program effectiveness have focused on organisational outcomes (e.g. staff turnover and retention, cost effectiveness), rather than improvements in the skills, knowledge and attributes of new-graduate nurses. This suggests that transition programs are seen more as a recruitment and retention strategy to maintain staffing levels rather than as a way of improving work readiness or transition into the workplace. Consideration should be given to changing that emphasis to reflect the education and transition needs of newly-qualified nurses.
- Studies comparing outcomes between those who complete a transition program and those that do not, particularly in Australia, are largely absent. New-graduate nurses are likely to be on a 'steep learning curve', irrespective of whether they are involved in a transition program or not, thus confounding the results of any study which does not have a control group.
- The best transition program will only be a partial solution to facilitating the successful transition from student to novice clinician. Much workplace learning takes place informally as a by-product of work processes (e.g. working with patients, working alongside others), rather than structured processes that may form part of a transition program (e.g. study days, mentoring).
- There are virtually no research findings on the transition of new-graduate enrolled nurses to the workplace, certainly not sufficient to guide decisions about how best to facilitate transition.
- In recent years, the volume of research on the transition of nurses from registered nurse to nurse practitioner has increased but this area of research is still in its infancy. The varied nature of nurse practitioner roles and the diverse environments in which they work makes comparisons difficult.

1 Introduction

The Australian Government Department of Health announced an 'Independent Review of Nursing Education – Educating the Nurse of the Future' (the Review) as a measure in the 2018/19 Federal Budget in May 2018. It will examine how current educational preparation in Australia equips nurses to meet the future needs of the Australian community. The Review is scheduled for completion in 2019 and this project represents an important initial phase.

The Department of Health commissioned a team from the Centre for Health Service Development and School of Nursing, University of Wollongong, to complete a series of literature reviews on particular topics identified as highly relevant to the Review.

1.1 Aims and objectives

This is the first of four literature reviews to inform the national 'Independent Review of Nursing Education – Educating the Nurse of the Future' in Australia.

Each topic has research questions that have been specified by the Department of Health. The results of these literature reviews are presented to prompt and inform discussion and conversation about particular issues that in summary relate to:

1. Fitness for purpose, work readiness and transition to practice,
2. Nursing as a career choice,
3. Clinical skill development, and
4. Future directions in health care delivery.

These are important issues for policy development and decision-making about the future directions of nursing education in Australia. The aim of nursing education is that it adequately prepares nurses of all levels and endorsement, to safely and competently perform their roles; it is from this perspective that these reviews have been framed.

The three nursing designations in-scope for these literature reviews are: Enrolled Nurses (ENs), Registered Nurses (RNs) and Nurse Practitioners (NPs).

1.2 Project governance and implementation

The project governance structure is outlined in Figure 1. To ensure an appropriate breadth and depth of nursing expertise a national working group of nursing educators and clinicians was established and complemented by an international nursing education advisory team. The national nursing education working group comprises exceptional nursing educators and clinicians drawn from across Australia. The members of this working group have reviewed the search strategy and topic maps, advised on literature selection, in several instances contributed with analysis, synthesis and write-up of sections and reviewed and commented upon the draft version of each literature review.

An international advisory team comprising three esteemed experts in nursing education from the US and UK has facilitated exploration of the international context. These international team members have been actively engaged and provided advice on issues arising during the course

of the project. They have also reviewed and commented upon the draft version of each literature review prior to their final submission to the Department.

The work of producing the literature reviews has occurred through four topic teams which included academic staff predominantly from the University of Wollongong, University of Sydney and Western Sydney University. Project leadership was provided by the Centre for Health Service Development and critical review and revision of the draft literature reviews supported by the School of Nursing, University of Wollongong. All personnel contributing to this project are acknowledged in Appendix 1.

Figure 1 Project governance and implementation framework

1.3 Topic 1 Fitness for purpose, work readiness and transition to practice

The literature review for Topic 1 addresses three questions/issues:

1. What skills, knowledge and attributes indicate that a person successfully completing nursing qualifications (pre-registration RN and EN and pre endorsement NP) is 'fit for purpose' and adequately prepared for practice on entering the nursing workforce?
2. How are the presence of these determined in both the national and international contexts? Consider the utilisation of independent external assessments such as pre-registration examinations and the utilisation of pre-requisites for entry to pre-registration programs.
3. Examine the role and effectiveness of transition to practice programs (however named), including those used to transition nurses into specialty areas. For what purpose are entry level nurses entered into transition programs and what outcomes are observed in nurses completing transition programs compared to nurses that do not enter such programs? Consider the national and international experience in relation to RNs, ENs and NPs.

All three questions/issues focus on the period of transition from student to beginning practitioner, with two exceptions, both of which occur prior to the transition period:

1. The utilisation of independent external assessments such as pre-registration examinations.
2. The utilisation of pre-requisites for entry to pre-registration programs.

With these two exceptions, all the evidence gathered and synthesised for Topic 1 came from studies undertaken during the transition period, thus excluding any studies/literature reviews involving nursing students.

The definition of the transition period used for the review encompassed the first year of employment for a beginning practitioner (RN, EN or NP), while recognising that some studies may involve a longer period of transition (e.g. a cohort of beginning practitioners followed up for more than one year).

2 Methods

The short timeframe for implementation of this project (approximately six weeks), necessitated a focused and robust methodology flexible enough to adapt to emerging issues and requirements.

Through these literature reviews the current state and future directions for nursing education are reported, as interpreted from careful analysis of international literature reviews, primary Australian research studies and the grey literature. The literature reviews have uncovered a large quantity of literature on each of the four topic areas. It is not intended to present a detailed analysis of the totality of literature available, as might be the case with a systematic review. Instead, a purposeful narrative review of existing literature is provided, with focus on the implications of key issues for contemporary nursing education in Australia.

These reviews recognise both the technical components of educational preparation as well as the non-technical and philosophical emphasis on nursing as a caring profession. At the heart of nursing and nursing education is the therapeutic relationship between nurse and patient which is built upon the delivery of safe, kind and compassionate nursing.[2]

2.1 Conducting a literature review

There are multiple forms of literature review which are distinguished by their characteristics and associated methodologies. Grant and Booth developed a typology of 14 review types and concluded that '… few review types possess prescribed and explicit methodologies and many fall short of being mutually exclusive. The term "literature review" is generic'.[3, p 91]

In nursing and health care, common forms of literature review include the systematic review, integrative review and narrative review. It is important to discriminate between these forms of review. Systematic reviews are used to answer highly specific questions about an intervention or aspect of clinical practice,[4] particularly where high levels of evidence may be required. Systematic reviews report in detail on individual studies using explicit criteria and critically evaluate the level of evidence using an accepted hierarchy or classification system.[5] The completion of a systematic review usually requires a substantial timeframe. Integrative reviews are used in nursing research to create and organise a body of literature. They are frequently preferred as they allow the combination of diverse methodologies and aim to provide an in-depth understanding of the topic under study.[6]

Where the purpose of the review is to explore broad or complex issues, deepen understanding through integration of findings and critically reflect on the literature a narrative review is preferred,[7] which is the approach adopted for this review. The value of expert-led narrative review for policy-makers lies in a '… meaningful synthesis of research evidence relevant to such complex situations that incorporates a broad range of sources and multi-level interpretation and critique'.[8, p 2] The completeness of searching is determined by time/scope constraints, there may be no formal quality assessment or appraisal of each paper, the synthesis can be tabular with narrative commentary and the analysis uses key features to characterise the quantity and quality of literature.[3]

An effective literature review requires an appropriate understanding of the issue or topic of focus; defined parameters and boundaries; a clear search and selection strategy; intelligent critical analysis and synthesis that leads logically to conclusions that address the original

research question(s); good structuring to enhance flow and readability and accurate referencing to identify relevant sources.

2.1.1 General methods

For all four literature review topics common search parameters were established with appropriate limits and exclusions. The short project timeframe led to a focus on both international and Australian peer reviewed academic literature retrieved from a specific range of databases: Scopus, CINAHL Plus, Medline and Health Source (Nursing / Academic edition). Database searching was supplemented with snowball searching (pursuing references of references and tracking citations forward in time).

Each topic team was supported by a research librarian from the University of Wollongong who advised on database selection and search term combinations. The research librarians assisted with preliminary searches and prepared reports on journal quality on the basis of the final sources selected for inclusion in each literature review.

Every effort was made to enhance the efficiency of searching by seeking out systematic reviews, meta-analyses, meta-syntheses and other literature reviews. This often provides a prompt overview of the spectrum of issues relevant to the particular topic. If the search results did not generate appropriate or adequate reviews then additional peer reviewed literature was identified.

Searching the academic and grey literature focused on literature from Australia and other English-speaking countries, specifically; the United Kingdom (UK), Ireland, United States (US), Canada, and New Zealand. These countries were selected as their experiences in nursing education are more likely to be generalisable to the Australian context.

2.1.2 Topic specific methods

Reviewing the literature involved three steps, which occurred concurrently:

Step 1: Searching for existing reviews of the literature (however named) to identify the evidence from the international literature, while recognising that this literature included some Australian studies.

Step 2: Searching for research studies undertaken in Australia to identify the evidence regarding the transition from student to beginning practitioner (ENs, RNs and NPs). This included whether these nurses are fit for purpose and adequately prepared for practice. These studies primarily included the following:

- Investigation of the perceptions of stakeholders (beginning practitioners and those they work with) regarding the skills, knowledge and attributes of beginning practitioners.
- Studies involving the formal assessment/measurement of the skills, knowledge and attributes of beginning practitioners.
- Studies of the effectiveness of transition programs.

Step 3: The grey literature search was undertaken using Google advanced search, focusing on government, educational and organisational websites, and limited to the years 2012 to 2019. Separate searches were undertaken for each country using the domain for the country (not available for the US) and targeting websites with the domains .gov, .edu and .org (or the equivalent where available). Region filters were used for the US, other countries where the secondary domains were not available. Searches were undertaken using the lead terms nurs* or "new* graduat*" and additional terms were added to target transition programs, prerequisites for entry to pre-registration programs, and preregistration testing requirements.

The issues/questions for Topic 1 were broken down into five sub-topics, the first three of which focus on the period of transition from student to beginning practitioner (Table 1).

Table 1 Sub-topics for Topic 1

Sub-topic	Comments
Fit for purpose	Defined to include skills, knowledge and attributes required of an enrolled nurse, registered nurse or nurse practitioner on entry to the workforce.
Transition / transition programs	Transition is defined as the first year of entry to the workforce, with or without a formal transition program (including specialty transition programs).
Measurement	Includes exploration of the evidence on assessment of 'fit for purpose' during the transition period for RNs, ENs and NPs.
Independent external assessments (pre-registration)	Government and registration / licensing bodies were targeted using a grey literature search. Snowballing techniques were then be used to identify academic literature.
Pre-requisites for entry to pre-registration programs	Government and registration / licensing bodies were targeted using a grey literature search. Snowballing techniques were then be used to identify academic literature.

Details of the search strategies and search terms are included in Appendix 2. The exclusion criteria are detailed in Table 2. In addition to these exclusion criteria, there needed to be a judgement about the extent to which each study/literature review was relevant to Topic 1.

Examples of papers excluded on the basis of relevance are summarised in Appendix 3 to give an indication of how the judgement of relevance was applied.

The main searches outlined in Step 1 and Step 2 above were supplemented with four small-scale searches addressing specific topics (see Appendix 2).

Table 2 Exclusion criteria

Exclusion criteria	Comment
Literature reviews which did not specify the databases searched, the search terms, and the inclusion/exclusion criteria.	There are many different types of literature reviews, some with formalised tools to assess quality. It was impractical to use multiple tools. Instead, this minimum standard was used to decide which reviews to exclude.
Studies of transition programs which did not include a description of the program.	Studies which simply named a transition program without describing would be of limited value and were therefore excluded.
Literature reviews and Australian studies investigating nursing students.	The review is focused on what happens in practice, when nurses are functioning as RNs or ENs.

The pdf files of included literature reviews and Australian studies focusing on RNs were imported into NVivo.[9] NVivo was then used to facilitate analysis and synthesis of the content of those papers by coding the results, discussion and conclusion sections of the international literature reviews to identify the following:

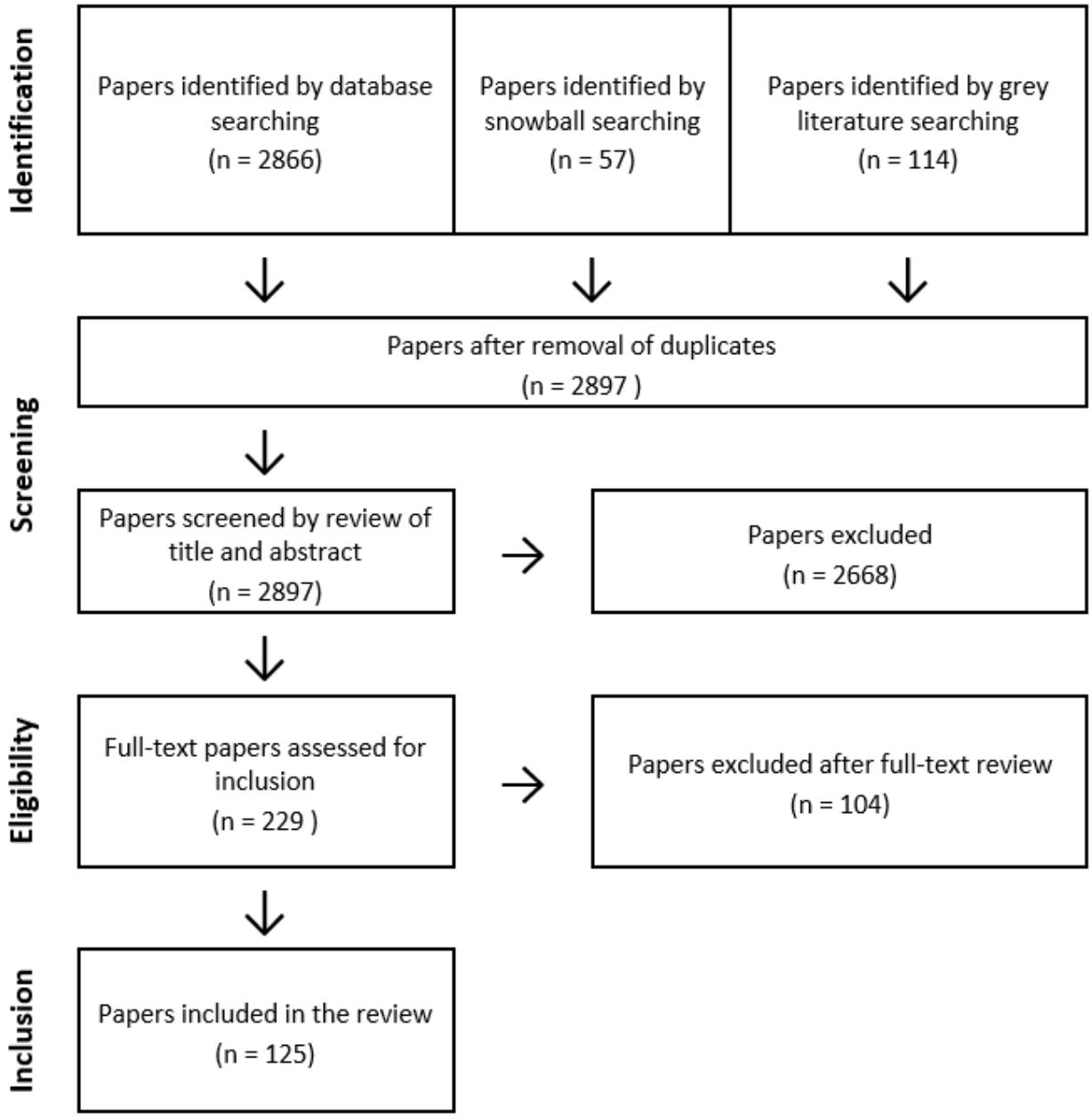
- The skills, knowledge and attributes of new-graduate RNs.
- Details about the structure and content of transition programs.
- The outcomes of transition programs, as reported in the literature.

The coding structure developed in this way then provided the basis for reporting the results from the international and Australian literature. The literature reviews imported into NVivo were searched using the text word 'Australia', which identified 10 additional Australian studies not identified from academic database searching. The reviews were also searched for studies incorporating control groups amongst all the studies included in the international literature reviews, which identified a small number of studies.

2.2 PRISMA flow diagram

The flow diagram (Figure 2) summarises the results of searching the academic and grey literature.

Figure 2 Flow diagram



2.3 Methodological quality

2.3.1 General issues

At the outset of the literature reviews it was difficult to predict the volume of relevant and available literature for each topic. The process of shifting through what may be a very large volume of literature can be aided by using an evidence hierarchy that clearly explains the differing levels and quality of evidence. 'Levels of evidence' are often represented as a pyramid with the highest levels of evidence at the top that is, systematic reviews and randomised controlled trials. This makes sense when assessing, for example the efficacy of an intervention.

It can be challenging when conducting narrative reviews to apply this hierarchy as a substantial proportion of useful literature may not have been derived from these higher levels of evidence.

While initially it was anticipated that this process could be aided through using an appropriate critical appraisal tool to describe each of the included studies it soon became apparent that this would not be possible within the available timeframe. Throughout each literature review summaries and syntheses of key sources are provided in tabular form, however these are deliberately not exhaustive. In collaboration with the Department of Health a decision was made that the available time was better invested in comprehensive analysis and intelligent synthesis of findings.

2.3.2 Topic-specific issues

Due to time constraints, no formal assessment of the quality of the literature reviews included in this review was undertaken. However, it was noted that, in general, the research questions addressed by each review were quite well defined, the selection of studies to include in each review was explained, comprehensive search strategies were employed, and most reviews provide a summary of each included study. The degree to which the issue of potential bias in the included studies was addressed was variable. The major deficiency was a lack of detail about which studies had been excluded and why.

The literature reviews included repeated observations about the quality of the evidence and the resulting limitations when it came to drawing conclusions based on that evidence. The following examples are indicative of many similar observations:

- 'The levels of evidence available in this review were limited, and the methods used to evaluate the programs were weak'.[10, p 287]
- 'The quality of the studies was also influenced by the lack of a comparison group, small sample size and poor response rates'.[11, p 1264]
- '… variations in transition program characteristics, research design and measurement strategies, and lack of control group studies hindered the ability to draw powerful conclusions'.[12, p E50]
- 'Few studies had designs with the degree of control necessary to rule out competing explanations'.[13, p 353]

The methodological quality of the Australian studies included in the review reflect these observations about the international literature.

The report on journal quality for included papers is included as Appendix 4.

3 Background – being fit for purpose

In her thesis investigating the 'practice readiness' of new-graduate RNs, May El Haddad makes the observation that the theory-practice gap, the gap between what nurses are taught should happen and what they do in practice, is not new. She notes that:

> *The current discourse regarding the supposed theory-practice gap emanates from the perspective that students have more theory than practice. Whereas, the notion of theory-practice gap that was purported to be a problem in the apprenticeship style training programmes in the 60s and 70s both in Australia and the UK emanates from the perspective that students had more practice than theory.*[14, p 38]

She then proceeds to make the following points:

- There is a need for caution in not setting unrealistic expectations for new-graduate RNs, a point which was made over three decades ago.
- Nurses are the only health professionals expected to be the 'finished product' after completion of their initial training.
- Nursing is one of the few areas of practice where new graduates face the prospect of making 'life and death' decisions early in their career.[14]

Based on the findings from her thesis, El Haddad refers to the 'nebulous nature' of practice readiness which is underpinned 'by the lack of clarity around the expectations of what newly graduated RNs 'should' be able to do and the level of responsibility they 'should' be able to take on, upon entry to practice'.[14, p 181] These are sobering thoughts with which to begin an exploration of the literature about the concept of a new-graduate nurse (RN, EN or NP) being 'fit for purpose'. The focus is on the point at which they take up the role for which they recently qualified, which may or may not include a period of prior work in the nursing workforce. While not for one moment denying the importance of this point in time, it is but one point on a journey of knowledge and skill acquisition that may last throughout the nurses' career.

The international and Australian literature included in this review has been strongly influenced by the work of three key academics, two from the US, Marlene Kramer and Patricia Benner, and one from Canada, Judy Duchscher. It is useful to provide a brief synopsis of their work by way of background information.

In 1974, Kramer published her seminal book *Reality Shock: why nurses leave nursing* based on her research involving two groups of baccalaureate nursing students who were followed up after they graduated and joined the nursing workforce. The basic finding of Kramer's work was that nursing students thought they had been adequately prepared for the workforce, and then suffered a 'shock' when they realised that they had not been adequately prepared for what faced them in the workplace. Kramer identified four phases of this 'reality shock':

1. The honeymoon phase – the initial excitement and enthusiasm.
2. The shock phase – the realisation that nursing is not what you expected.
3. The recovery phase – recovering from the initial shock.
4. The resolution phase – finding a way to reconcile the conflict between the different culture of university and the workplace.[1]

The concept of reality shock was referred to in one way or another by 18 reviews of the international literature and a third of the Australian studies included in this review.

In 1984, Benner published her seminal book *From novice to expert: excellence and power in clinical nursing practice*. Using the Dreyfus Model of Skill Acquisition, Benner described how increasing nursing expertise is characterised by three fundamental changes. Firstly, a movement from relying on abstract principles to using past, concrete experience. Secondly, situations are seen less as a compilation of equally relevant parts and more as a complete whole in which only parts are relevant. Finally, passage from detached observer to involved performer. She also described how nurses pass through five levels of proficiency in acquiring and developing expertise:

- Novice – the novice or beginner has no experience in the situations in which they are expected to perform.
- Advanced beginner – the advanced beginner has limited prior experience in actual situations and demonstrates basic levels of performance.
- Competent – the competent nurse has typically been working as a nurse in the same or similar situations for 2-3 years and is able to demonstrate efficiency and confidence in his or her ability.
- Proficient – the proficient nurse perceives clinical situations as a whole rather than a set of parts and has learnt from experience what to expect from typical events in given situations.
- Expert – the expert nurse has an intuitive understanding of each situation and is highly proficient.[15]

Eighteen of the international literature reviews referred to Benner's work on 'novice to expert'. There was less emphasis in the local literature with only seven Australian studies mentioning Benner. In the context of this review, the student nurse is a novice and a new-graduate EN or RN entering the workforce is considered to be an advanced beginner. From the perspective of Benner's work, it is unrealistic to expect a new-graduate EN or RN to be competent. One of the main implications of the different levels of nursing expertise is that novices and advanced beginners think and act differently from their more experienced and proficient counterparts. This is potentially an issue when seeking the views of experienced nurses about the skills, knowledge and attributes of new-graduate RNs.

More recently, Duchscher, using the term 'transition shock' and building on the work of Kramer, has developed a conceptual framework and emerging theory for understanding the process of transition, which she describes as having three stages – doing, being and knowing. Her approach is based on a 10-year program of research and an extensive analysis of the literature.[16]

It is beyond the scope of this review to examine Duchscher's framework in detail, however, the main implication of her work is that the needs of new graduates change as they advance through these three stages of transition.[17] Sixteen reviews of the international literature and 19 of the Australian studies refer to Duchscher's work. Recently, a group of Australian researchers have argued that the work of Benner and Duchscher can be used to facilitate greater understanding of the new graduate experience and improve strategies for meeting their needs:

> *For nurse educators, mentors and leaders in the workplace, acknowledging and understanding Benner's stages of skill acquisition and Duchscher's stages of transition theory and transition shock model can serve to enhance the NGRN's [new-graduate RN] transition to practice through experience. This will assist in the establishment of quality patient safety practices through targeted education and mentoring, and realistic expectations of competence and experiential skill acquisition in the first year of clinical practice.*[18, p 202]

The process of transition from student to clinician is complex and multi-faceted (see Section 5.3). A recent Canadian study on work readiness reviewed the literature around definitions of work readiness, particularly as it pertained to new-graduate nurses.[19] Four characteristics of new-graduate nurses' work readiness were identified, namely:

- Personal characteristics – the ability to manage daily tasks and cope with workplace demands/challenges.
- Clinical characteristics – attributes such as competency, problem-solving, and decision-making, including having adequate skills and knowledge, and confidence in one's own ability.
- Relational characteristics – interpersonal skills such as communication, collaboration, and teamwork.
- Organisational acuity – the awareness of workplace protocols and practices (e.g. work ethic, self-direction and motivation).[19]

Given these characteristics, it is clear that entering the workforce and being 'work ready' relies not only on the clinical and theoretical skills and knowledge learnt in the classroom, but also a whole range of other attributes, particularly the ability to relate to other people and be aware of organisational dynamics. These attributes are likely to be developed through experience and exposure, rather than being taught in the classroom.

4 Introduction to the presentation of results

Topic 1 includes a range of sub-topics and covers three nursing roles – RNs, ENs and NPs. Most of the focus of Topic 1 is on what happens in the workplace, rather than universities, except for two sub-topics (independent external assessments such as pre-registration examinations and pre-requisites for entry to pre-registration programs). The sub-topic examining the role and effectiveness of transition programs also includes those programs transitioning nurses into specialty areas. One specific question asks: what outcomes are observed in nurses completing transition programs compared to nurses that do not enter such programs? The review covers both the international and Australian literature.

This range of issues presented challenges in terms of how best to present the findings, particularly as the results of some reviews/studies may have a bearing on more than one issue (e.g. a study that involves RNs and ENs, a literature review about the process of transition from student to clinician that includes findings about the skills, knowledge and attributes of the nurses making the transition).

The findings are primarily structured in terms of the three nursing designations (RN, EN and NP). The vast majority of the literature identified focused on RNs, requiring a detailed series of sub-headings in that section of the report. The findings from the international and Australian literature are presented together where it was more meaningful to do so; otherwise, the findings are presented in separate sub-sections.

Given the very short time-frame to complete the review, it was never intended that the findings would include a detailed description of individual papers. However, it is important to present the findings in sufficient detail so that the evidence supporting the interpretations is clear to the reader. Therefore, tables summarising included papers have been used judiciously to provide this evidence.

5 Results – registered nurses

5.1 Introduction

In total, 41 international literature reviews and 39 Australian studies were identified which explored the competency of new-graduate RNs, the experiences of new-graduate RNs during the process of transition, and the effectiveness of transition programs for new graduates in both generalist and specialist settings.

The papers about the experiences of new-graduate RNs did not directly address the different aspects of Topic 1 but were included because of the many factors that can potentially influence whether a particular nurse is 'fit for purpose' or whether a particular transition program is effective or not. For example, each of the literature reviews focusing on transition experiences gave insights into the issue of whether new-graduate RNs are adequately prepared for practice when starting work as an RN. The competency of nurses in the workplace can be influenced by their self-confidence which can, in turn, be influenced by the attitude of their co-workers. It can be hard to appear competent in the presence of incivility in the workplace. Likewise, many of the papers focusing on the effectiveness of transition programs included findings which indicated the extent to which new-graduate RNs were 'fit for purpose' upon entry to these programs.

The Australian papers included studies employing a wide variety of methods including primary quantitative, qualitative and mixed methods designs and two literature reviews. Some studies gathered information from the perspective of the new-graduate nurse, others from preceptors, new graduate transition program coordinators and experienced nurses working in the health care system. No studies were found that explored patients' or consumers' perspectives of new-graduate RNs competence in the first year of practice. There were no studies identified that examined the experiences of new-graduate RNs who were not employed in transition programs.

5.2 Fit for purpose

5.2.1 International literature

Two literature reviews were published in 2015 and 2016, examining the perceptions of experienced RNs regarding new-graduate RNs, including their expectations and judgements about readiness to practice.[20,21] Although these two reviews covered similar territory, there were only five studies common to both. This perhaps says something about the complexity of identifying suitable studies on the topic of 'fit for purpose' of new-graduate RNs. Table 4 summarises these two reviews, as well as the other four reviews with a strong focus on the skills, knowledge and attributes of new-graduate RNs.

Much of the evidence is weak, with 'findings' in the various literature reviews often relying on the results of only one or two studies. An example of this can be found one literature review which explored experienced nurses' attitudes, views and expectations of new-graduate nurses and came up with this finding about the 'advanced skills' of new graduate RNs:

> *Clinical skills such as administering pain relief, managing falls, calculating urinary output and titrating insulin were named as challenging for graduate nurses (Hartigan et al., 2010). Experienced registered nurses reported graduate nurses did not often accomplish clinical skills to the standard they expect (Hartigan et al., 2010). Participants also discussed graduate nurse reliance on machinery to determine vital observations (Hartigan et al., 2010). This was confirmed by Hickey, who found 76% [of] experienced registered nurses believe graduate nurses could independently and competently perform advanced technical skills sometimes or less often (Hickey, 2009).*[21, p e47]

The two studies referred to in this quote, by Hartigan et al. and Hickey, are relatively well-cited in the literature but both were small, local, studies. Neither study appears in the list of references in this review because they are part of the quote, not studies included in this review.

Freeling and Parker[21] identified seven areas of nursing skills (see Table 3) but the way the findings are presented makes it difficult to assess the degree to which each skill is present or absent in new graduate nurses. For example:

- Organisation and time management was found to be a 'significant challenge'.
- Patient assessment was identified as 'vital to patient outcomes' with studies including accounts of what happens when new graduates did not have the skills to recognise patient deterioration. The review came to no conclusion about the extent to which inadequate patient assessment is a problem.[21]

Table 3 Literature reviews focused on identifying the skills, knowledge and attributes of new-graduate RNs

Authors / Year published / Title / Reference	Description of the review / included studies	Findings
Freeling & Parker, 2015. Exploring experienced nurses' attitudes, views and expectations of new graduate nurses: a critical review.[21]	Aimed to evaluate existing primary research to identify experienced RNs' attitudes, views and expectations of graduate nurses. 10 studies included, primarily from the UK, the US, Canada and Australia.	Four main categories emerged from thematic analysis: (1) nursing skills; (2) inadequate preparation during academic program; (3) attitudes and ward culture; and (4) concerns with confidence. Nursing skills encompassed clinical decision making; organisation and time management; delegation and management skills; patient assessment; communication; basic skills; and advanced skills.
Missen et al., 2016. Registered nurses' perceptions of new nursing graduates' clinical competence: a systematic integrative review.[20]	Included studies with experienced RNs as participants (e.g. educators, nurse managers, staff nurses, preceptors) investigating the clinical competence of RN graduates in their first year. 15 studies included, conducted in the US (5 studies), the UK (3), Canada (2), Sweden (2) and 1 each in Australia, Korea, Sweden and South Africa.	Four themes emerged from thematic analysis that experienced RNs perceived as important aspects of clinical competence for new-graduate RNs: (1) interaction/communication; (2) clinical/technical skills; (3) critical thinking, and (4) overall readiness for practice. All four areas were perceived to be lacking in new-graduate RNs. In some studies, experienced RNs expected new graduates to be 'capable, competent, and provide unsupervised nursing practice at the start of their careers' (p 150).
Pfaff et al., 2014. An integrative review of the factors influencing new graduate nurse engagement in interprofessional collaboration.[22]	Included articles which identified barriers and facilitators of engagement in inter-professional collaboration involving new-graduate RNs. 26 papers included – 24 studies and 2 non-research papers. Except for two studies where the location was not specified, all studies conducted in the US or Canada.	The findings included barriers and facilitators to new graduate engagement in inter-professional collaboration at the individual, team and organisational levels. Inter-professional collaboration may be hindered by new graduates' lack of knowledge and experience. Lack of self-confidence may be a significant barrier for new graduate nurses, especially when interacting with doctors.
Theisen & Sandau, 2013. Competency of new graduate nurses: a review of their weaknesses and strategies for success.[23]	This review aimed to identify psychomotor and cognitive competencies of new-graduate nurses. 26 studies included in the review but the articles were not clearly identified.	The review identified competencies considered important for new graduates: communication; leadership; organisational skills; critical thinking; dealing with situations such as emergencies, acutely-ill patients and end-of-life care; and stress management. The review referred to these as challenging, difficult or needing improvement, but gave no real indication of the extent to which such skills/competencies were lacking.
Voldbjerg et al., 2016. Newly graduated nurses' use of knowledge sources: a meta-ethnography.[24]	Focused on qualitative studies investigating new-graduate nurses' use of knowledge sources, including 19 studies from Australia (5), the UK (4), Canada (3), the US (3), Norway (2) and New Zealand (2).	When entering the workforce, new-graduate RNs uncritically use their more-experienced peers as a primary knowledge source. After about 6 months, new-graduate RNs develop increasing confidence and come to value themselves as sources of knowledge. Use of knowledge sources is closely linked to confidence.
Zheng et al., 2016.	Included 6 studies from the US (2), Australia (2), Canada (1) and the UK (1). 4 studies involved new-graduate RNs;	New graduates are aware of their role and responsibilities in caring for dying patients but 'felt unable to perform well due to lack of adequate end-of-life care

Authors / Year published / Title / Reference	Description of the review / included studies	Findings
How new graduate nurses experience patient death: a systematic review and qualitative meta-synthesis.[25]	1 involved RNs with at least 1 year of experience and 1 included RNs with experience ranging from 2 months to 3 years. 5 studies in acute hospital settings, 1 study in palliative care setting.	skills and knowledge'. The authors identified their 'lack of skill or training in performing nursing skills and communicating with dying patients'. Three studies reported that they were often left to manage on their own after patients' died.

5.2.2 Australian literature

The Australian studies that explore the concept of new-graduate RNs and whether they are 'fit for purpose' fell into two distinct groups. The first group examines what new graduate RNs need to know (usually in the form of skills requirements) to commence clinical practice. The second group focuses on the assessment of new-graduate RNs' competence in those skills, knowledge and attributes using a range of different methods including self-assessment, assessment with validated tools, and the perceptions of others (e.g. experienced nurses and new-graduate program coordinators).

Several studies have explored the necessary skills that an RN must have on entry to practice, including work by Brown and Crookes,[26,27] Lima and colleagues,[28,29] and Missen, McKenna and Beauchamp.[30,31] Each of these authors have used or developed tools to assess elements of the skills, knowledge and attributes of new-graduate RNs at the time of entry to practice.

Brown and Crookes used a modified Delphi technique to identify the level of competency that experienced RNs expected of new-graduate RNs, using a set of skills previously developed by the researchers.[26,27] For the purposes of the study, 'work ready' was defined as meaning that the new graduate would 'be safe & knowledgeable; proficient & coordinated and appropriately confident and timely; that the new graduate would not require supporting cues'.[26, p 4-5] Eight skills were identified for which experienced RNs expected new-graduate RNs to be 'work ready':

1. Privacy and dignity.
2. Demonstrates behaviour conducive to learning.
3. Personal care - ability to assess, plan implement and evaluate care of clients across a range of settings using a holistic, comprehensive nursing model.
4. Efficient and effective communication.
5. Communication and documentation.
6. Professional nursing behaviours - includes collaborative approaches to care.
7. Therapeutic nursing behaviours/ respectful of personal space.
8. Preventing risk and promoting safety – duty of care.[26]

Of these, only the top four achieved agreement by more than two-thirds of respondents as being skills in which new graduates should be independent (for the purposes of the study, 'independent' equated to 'work ready'). Interestingly, 'medications and IV products', one of the 30 skills areas, was only ranked 19th in terms of expected level of competence. The authors concluded by saying that 'the findings indicate that there is no clear expectation within the nursing profession that newly graduated RNs would be competent' (i.e. work ready).[26, p 7]

The two studies by Lima and colleagues used the Nurse Competence Scale (see Section 5.5) to measure self-assessed competency of a cohort of 47 new-graduate RNs at the commencement of a transition program[29] and over the course of the 12-month program.[28] The research was undertaken at a tertiary paediatric hospital. At the commencement of the transition program, the nurses self-assessed their overall competence with a mean score of 40.1, which indicates a lower level of perceived competence than other studies using this tool with more experienced nurses. The highest score was for 'ensuring quality', which the researchers surmised 'may

reflect the emphasis on critical thinking and utilisation of evidence in practice in undergraduate studies'.[29, p 354] The lowest perceptions of competence were for 'teaching – coaching' and 'therapeutic interventions.[29]

The second study included the initial self-assessment of competence, together with follow-up assessments at three time points during the transition program (3 months, 6 months and 12 months). The average self-assessed level of overall competence increased to 61.1 (3 months), 72.9 (6 months) and 76.7 (12 months). At 3 months and 6 months, the highest score was for 'helping role' and the lowest score was for 'therapeutic interventions'. By the end of the transition program (at 12 months), 'ensuring quality' was ranked 6th of the 7 competency domains, compared with being ranked highest at program commencement. The researchers concluded that 'graduate nurses showed significant gains in competence in the first 6 months of transition from nursing students to registered nurses'.[28, p 878] Competency also improved in the second half of the transition program, but the results were not statistically significant.

Patterson et al.[32] conducted a cross-sectional survey of new graduates in a transition program at a large metropolitan hospital in Victoria using the Work Readiness Scale (for details of the scale see Section 5.5). The nurses had experienced three different clinical teaching models during their university studies. The nurses who had attended one of the models of clinical placements had higher scores on the Work Readiness Scale but the differences were not statistically significant. The researchers concluded that, in general, participants had 'relatively high levels of work-readiness', as measured by the Work Readiness Scale.[32, p 103]

Some of the literature described new graduates as being generally 'work ready'. A survey of experienced nurses in Victoria (n=172) concluded that graduate RNs were prepared for the workforce in all areas except leadership and that criticisms of new graduates not being work ready were unsupported by their research.[33] Several other studies described different standards of 'work readiness' based upon which university a person graduated from.[30,31] This highlights the differences in theoretical approach and clinical skills taught across Australian nursing programs with a resultant variation in skills and knowledge that you could expect a new graduate RN to be proficient in.[34]

5.2.3 Deficits in skills, knowledge or attributes identified in the international and Australian literature

Table 4 provides a summary of the skills, knowledge and attributes identified in the international and Australian literature as being of concern with regard to new-graduate RNs being 'fit for purpose'. Although these findings are based on a large body of work undertaken over many years there are many issues with regard to the methodological rigour of this research and its subsequent generalisability. Issues include the predominance of small-scale studies (including small sample size and local foci), with little replication, and a lack of robust, generally-accepted, methods for measuring skills, knowledge and attributes.

Developing a prescriptive list of skills, knowledge and attributes required does not capture the complex links and interactions between them or the impact of personal, clinical and relational characteristics or organisational acuity.[19] Additionally, as new-graduate nurses are entering the workforce in a wide range of clinical environments it is likely that beyond common skills, knowledge and attributes, there are specific skills, knowledge and attributes required to be work ready for each clinical setting. Given that the diversity of clinical settings in which new-graduate nurses commence practice is growing as community health needs change, it is important that pre-registration education considers the impact of this on work readiness and fitness for purpose.

Table 4 Deficits in skills, knowledge or attributes identified in the international and Australian literature

Skill, knowledge or attribute	Findings from the international literature	Findings from the Australian literature
Clinical or technical skills	Ability to perform clinical skills rated highly by new graduates and experienced nurses.[20,21,35] Mixed results for the extent to which such skills are present in new graduates.	New graduates identified that their university education had not adequately prepared them for the practical skills needed on the ward.[36] New graduates identified autonomy in basic clinical skills and procedures and providing safe care as key components of readiness for practice.[37] Routine physical assessment was generally done well by most new graduates. Technical skills varied with high levels of skills evident in assisting people with their activities of daily living but poor levels of skill in venepuncture and inserting an indwelling urinary catheter. Medication administration was mostly performed well but new graduate RNs had deficits in relation to understanding the physiological responses to medications. Advanced skills were mostly poorly done.[31] More than 50% of participants (n=58) reported making a medication error during their transition program.[38] In a systematic review of Australian studies, it was identified that new graduates believed they were not adequately prepared at university to competently perform clinical tasks.[39] There were mixed results for the extent to which such skills are present in new graduates and limited agreement on what skills are required.
Communication skills	Communication identified as an area in which new graduates can 'struggle',[23] or have 'difficulties',[20] particularly communicating with other health professionals. Findings mitigated by evidence that some of their colleagues perceive new graduates as having good communication skills.[20]	Most new graduates were good at communicating with patients and their families but 37% were poor at providing health education and 24% were poor at communicating changes in the patient condition to the healthcare team.[31]
Inter-professional collaboration	Identified as an area that could be improved but, in part, this is due to several barriers to inter-professional collaboration beyond the control of new graduates (e.g. disrespect in the work environment, lack of leadership support).[22]	New graduate nurse transition program coordinators identified most new graduates were unable or reluctant to communicate with members of the multi-disciplinary team.[30]

Skill, knowledge or attribute	Findings from the international literature	Findings from the Australian literature
Knowledge	New graduates reported a lack of knowledge to provide adequate patient care,[40] and that the knowledge required in the workplace did not reflect the theoretical knowledge they had gained through their nursing education.[24]	New graduates identified having knowledge of their own limitations and possessing a theoretical knowledge base as key components of readiness for practice.[37] No other studies explored knowledge in isolation from clinical skills.
Confidence	Lack of confidence identified in many reviews.[13,21-23,40] Lack of confidence seen as an important factor influencing communication skills.[22,41]	New graduates identified exhibiting confidence on the job as a key component of readiness for practice.[37] Confidence increased as the transition program progressed.[42,43]
Critical thinking	Ability to think critically framed in various ways: 'lack of satisfaction' with critical thinking ability,[20] or 'falling short' in critical thinking ability.[24]	No studies described critical thinking in isolation from clinical skills.
End-of-life care	New graduates 'feeling inadequate' in providing end-of-life care. Systematic review found that they have a lack of adequate skills and knowledge in end-of-life care.[25]	Some new graduates identified that the intersection of personal and workplace experiences impacted on their ability to deal with death and dying.[44] New graduates struggle to deal effectively with death and dying.[45]
Organisational skills	New-graduates have difficulties with, or lack, organisational and time management skills.[23,41,46,47]	Three lowest ranked skills that experienced nurses considered 'necessary' for new graduates were case management, leadership skills and supervisory skills.[27]
Priority setting	Closely linked to the issue of organisational skills is evidence of new graduates lacking the ability to prioritise patient care.[20,21,23,46] One review reported two studies where participants stated that 'college cannot teach you how to multitask or prioritise'.[46]	New graduates in a transition program in rural hospitals identified that they were unprepared for prioritising care needs, including the need to multi-task and change priorities rapidly when required.[48] Many new graduates found it difficult to manage time and develop routines when they transitioned from one ward to the next.[39]

5.3 The process of transition

5.3.1 International literature

The international literature includes many references to the 'reality shock' that greets new-graduate RNs when they make the transition from student to clinician, from a familiar teaching environment to an unfamiliar health care environment. This is despite differences in the educational programs leading to registration in different countries. As was noted in one review:

> *In all studies included in this review, there was a perceived disconnect between "idealistic" views of nursing care that students embraced in their undergraduate education and the "real world" of nursing, in the task-orientated and economy-driven health care system. The disconnect was also associated with role ambiguity and lack of understanding of what is required of an RN.*[49, p 9]

Facing the 'real world' of clinical practice can be very stressful for new-graduate RNs.[35,40,50,51] They can be marginalised, made a scapegoat, and face a range of ethical dilemmas.[52] In dealing with this reality shock and associated stress, the importance of a supportive work environment was repeatedly mentioned in the literature. This support could take the form of structured support such as in a formal transition program; assignment of a preceptor or mentor,[46,53] or more informal support provided by colleagues in day-to-day practice. There was a real sense from the literature that supporting new graduate nurses is everyone's responsibility.[49]

Table 5 summarises the findings from five literature reviews which examined the process of transition and gives an indication of the breadth and depth of factors influencing new-graduate RNs. The findings are illustrative of the broader literature included in this review on the subject of transition. Although the 'shock' of transition can be present in any change of nursing role, the evidence indicates that it is particularly pronounced for new-graduate RNs.[35]

Another review, examined the impact of incivility on the retention of new-graduate RNs, including 16 studies from the US, Canada, Australia and New Zealand, of which 12 only included new-graduate RNs as participants. The review found that:

> *… new graduates are often the targets of incivility because they are at the bottom of a power-related hierarchy …This is significant because new graduates use their first year to build self confidence in addition to skills.*[54, p 740]

The authors of the review made the point that rather than addressing the issue of incivility directly, new graduates tend to be given strategies and support to cope with the incivility.[54] New-graduate RNs employ a wide range of coping strategies to care and advocate for themselves, including strategies to 'fit in', manage their own distress and assess their own progress and performance.[51,55]

Table 5 Literature reviews focusing on experience of transition for new-graduate RNs

Authors / Year published / Title / Reference	Description of the review / included studies	Findings
Dwyer & Hunter Revell, 2016. Multilevel influences on new graduate nurse transition: a literature review.[56]	Aimed to identify factors influencing new-graduate nurse transition and synthesise the findings using social ecological theory. Included 42 quantitative studies. The location of the studies is not specified but most appear to have been conducted in the US.	Factors influencing transition were grouped into three categories: (1) intrapersonal (e.g. educational preparation, prior experience, resilience); (2) interpersonal (e.g. respect, incivility/civility, role models); (3) organisational (e.g. job satisfaction, staffing, job/role stress).
Gardiner & Sheen, 2016. Graduate nurse experiences of support: a review.[40]	Examined the experiences of new-graduate nurses and the effectiveness of support strategies to assist their transition to the workplace. Included 36 studies, all with new-graduate nurses as participants, from countries considered comparable to Australia (e.g. US, and Canada).	One of the three main themes was the stress experienced by graduate nurses, with the main contributors to stress being 'feeling unprepared and overwhelmed by responsibility' and bullying amongst nurses. The other two themes were the amount of support from senior nurses and the importance of feedback about their performance as nurses.
Hawkins et al., 2018. Coming ready or not! An integrative review examining new graduate nurses' transition in acute care.[49]	Examined the experiences of new-graduate RNs' transition to practice in acute care settings. 26 studies included, of which 19 were conducted in the USA (12) and Australia (7).	Concluded that the 'transition experience of new graduate nurses is complex and multidimensional' and found that 'supporting new graduate nurses transition appears to not solely be the responsibility of designated mentors/preceptors but everyone's responsibility'.
Mellor et al., 2017. Strategies new graduate registered nurses require to care and advocate for themselves: a literature review.[51]	Explored self-care strategies employed by new graduates to deal with the process of transition. 80 included studies, although the location of the studies is not specified.	Identified strategies included the need for self-reflection, to fit into the organisational culture, minimise horizontal violence, manage distress and obtain feedback from peers.
Teoh et al., 2013. Lost in transition - a review of qualitative literature of newly qualified registered nurses' experiences in their transition to practice journey.[47]	Aimed to identify qualitative research investigating the experiences of new graduates on their transition to practice journey. 12 papers included.	The three themes identified as exerting an influence on transition to practice were (1) the effectiveness of transition programs; (2) the realities of practice (e.g. job stress, job ambiguity, communication with colleagues); and (3) support and coping mechanisms (e.g. peer support, supportive preceptor).

5.3.2 Australian literature

Sixteen Australian papers (15 studies, 1 literature review) explored the experiences of new-graduate RNs during their process of transition. Of these, four studies provided insights into the skills, knowledge or attributes of new-graduate RNs (for details of which see Section 5.2.3) and are summarised in Table 6.

One of these papers is a systematic review of 13 qualitative studies on nurses' experiences of transition and integration in Australia during their new graduate year.[39] The findings support the international literature about key elements of the transition process: the 'reality shock' of real-world practice (e.g. being given high levels of responsibility inconsistent with their capabilities, the challenging nature of shift work, social isolation, inadequately prepared to perform clinical tasks); managing incivility in the workplace; and navigating a transition program with limited support. Recommendations from the systematic review include:

1. Universities increase content in nursing programs on resilience, managing conflict and supportive strategies.
2. Universities increase the clinical and practical skills training including the hours allocated for skills development.
3. Development of compulsory, structured, twelve-month graduate nurse transition programs that target graduate nurses clinical and social needs with government and hospital funding.
4. Number and frequency of ward rotations be reduced and specialist practice rotations only occur after first rotation.
5. Reduced workloads in the first rotation to allow graduates to learn and develop new skills.
6. Preceptors be allocated to all graduate nurses and rostered on the same shifts as the graduate nurse.
7. A comprehensive orientation with supernumerary days provided at the beginning of the program and commencement of each rotation.
8. Support programs are developed for debriefing in a safe environment.[39]

What is absent from this list of recommendations is suggested actions for the healthcare system to reduce incivility, bullying and negative workplace cultures.

Several included studies were small qualitative studies that examine the experiences of a group of new graduates at either one point in time, or via repeat interviews at multiple points in time during their transition. A small number of studies used cross-sectional surveys or mixed-methods designs to gather broader data. Most of these studies provided similar recommendations to the systematic review.

Parker et al.[57] evaluated 282 new graduates' experiences of transition to the workplace in NSW public hospitals during 2008. Only 30% of participants described nursing morale as good, only 63% had designated mentors, and 45% rated their stress levels as high or extreme. They described the transition process as challenging, stressful and difficult, with workplace environments lacking commitment, having minimal support, unreasonable workloads, unreasonable expectations and the presence of horizontal violence.[57]

Whilst it might be anticipated that the transition to becoming an RN might be easier for a person who was previously an EN, two studies that examined the experiences of new-graduate RNs who had previously been ENs refuted this notion.[58,59] Many participants articulated that they did not disclose to other nurses and management that they had previous EN experience because when they did less support was provided. This included other staff expecting them to cope with higher workloads than other new graduates,[58] and staff providing them with less support and supervision.[59] Participants also described difficulties they experienced in role transition and in delegating tasks to ENs and other staff.[59] Developing non-technical skills such as decision-making was seen as the focus by many.[58] Both studies recommended that all new graduate RNs be treated equally regardless of previous experience.

Other studies examined new-graduate programs in regional and/or rural hospitals.[43-45,48,60,61] The reality shock experienced by new graduate RNs appears to be further compounded in these settings as a consequence of limited resources and supports systems as well as changes to skill mix within the hospitals. Some studies reported new-graduate RNs assuming leadership positions such as shift team leader early in the transition program.[43,48,61] Development of critical thinking skills is crucial in these environments as there are limited or no on-site medical support and lower numbers of experienced nursing staff available to support decision-making compared to metropolitan hospitals. This places undue strain on new-graduate RNs and leads to stress and fear of making mistakes.[48]

Feltrin et al.[62] conducted a grounded theory study to investigate how graduate nurses participating in transition programs in two South Australian hospitals adapted to individual ward culture. The new graduates used multiple strategies to adapt and 'fit in', including projecting a professional image; observing the culture in each ward and learning how to fit in. Many participants reported that they didn't fit in and this often related to not feeling connected with staff or part of the team.[62]

Phillips and various colleagues have conducted a series of studies looking at different aspects of transition.[63-65] The findings indicated that new graduates may be treated differently by their senior colleagues depending on their choice of prior paid employment (particularly if this included a nursing background),[65] that 'graduate transition can be improved by supportive institutional practices and fostering collegial respect',[64, p 106] that although many graduate nurses are satisfied with the process of transition, many are not; and that 'participants overwhelmingly agreed that the major enabler of successful new graduate transition was support, particularly team and individual preceptor support'.[63, p 124] The importance of support was emphasised by research involving 109 new-graduate RNs conducted in large tertiary acute-care facility, which found that 'clinical support at the unit level and overall clinical supervision were key factors influencing NGNs' satisfaction with the practice environment'.[66, p 324]

Table 6 Australian studies focusing on experience of transition for new-graduate RNs

Authors / Year published / Title / Reference	Methods / Setting / Sample	Findings
Ankers et al., 2018. A phenomenological exploration of graduate nurse transition to professional practice within a transition to practice program.[36]	Phenomenological study using semi-structured interviews with 7 new graduates in their first 4 to 8 months of a transition program in 1 hospital in South Australia.	Four themes identified: (1) Disconnect – participants' university education had not adequately prepared them for the practical skills needed to be a nurse; (2) Sink or Swim – related to new graduates experiences of the pace of work, increased responsibility and the skill levels required to get the job done; (3) Impacts to Transition – new graduates' expressions and self-critical language when describing events; and (4) Reducing Impacts to Transition – several strategies impacted on the new graduates ability to reduce the impact of transition (e.g. identifying approachable staff, having role models who inspired them).
Lea & Cruickshank, 2015. The support needs of new graduate nurses making the transition to rural nursing practice in Australia.[43]	Exploratory, qualitative, case study involving semi-structured interviews with 15 new graduate nurses participating in a transition program in rural/outer regional hospitals in northern NSW.	Three themes identified: (1) Getting started – stressful for participants; limited support systems; limited medical support after hours made the first 3 to 4 months stressful. Unrealistic expectations of the workplace. (2) Settling in (occurred at 6-7 months) – participants more confident, more settled and feeling good. This may be due to forming relationships with staff but also familiarity with the environment. Being put in leadership positions caused stress and role strain. (3) Just another nurse (at 11 to 12 months) – forming positive relationships and felt accepted. Able to make clinical decisions and handle complex patients. Focusing on the next step in their career and looking for permanent jobs. Access to a mentor would have been beneficial.
Walker & Campbell, 2013. Work readiness of graduate nurses and the impact on job satisfaction, work engagement and intention to remain.[44]	Survey of 96 new graduates from 2 regional hospitals in Victoria using tools to measure work readiness, job satisfaction, work engagement & intention to remain. Survey completed after 9 months of their 12-month new-graduate program.	Graduate nurses' clinical competence and organisational acumen were significantly and positively related to job satisfaction. Social intelligence was a predictor for work engagement.
Walker et al., 2013. Graduate nurses' transition and integration into the workplace: a qualitative comparison of graduate nurses' and nurse unit managers' perspectives.[45]	Descriptive qualitative study. 2 years of data from new graduates (38 in Year 1, 31 in Year 2) and nurse unit managers (12 in Year 1, 13 in Year 2) in one regional hospital in Victoria. Data collected at the end of each transitional year.	Two themes identified: (1) Job-related stressors (e.g. unprofessional workplace behaviour, shift work, workplace support); and (2) Personal stressors (e.g. confidence in nursing abilities, coping with death and dying). Many nurses reported feeling confident with their nursing abilities and acknowledged support from program coordinators; support and reassurance of staff; helpful preceptors; receiving positive, constructive, feedback; and having regular study days.

5.4 Role and effectiveness of transition programs

Transition programs are referred to by many different names in the international literature, such as graduate programs, transition programs, internships, orientation programs and residency programs. There is considerable variation in program content and program length, with the majority of programs 12-months long but varying in length from 6 weeks to 18 months. Program content typically consists of three main components: the provision of support, activities to promote socialisation, and activities to facilitate learning. Support may come in the form of a role such as a preceptor or mentor. Clinical rotation is a common feature of transition programs, with differences in the number and length of rotations. There is variability around whether these rotations are driven by graduate preferences and skill development. Educational content takes many forms, including didactic teaching sessions, case studies, simulations and role plays.[41,50,67-69]

Such wide variability in transition program structure and content makes it almost impossible to aggregate findings across programs and presents significant challenges in evaluating program effectiveness. Additionally, the absence of data about new graduates who did not participate in transition programs precludes comparison with those who did participate in transition programs. Notably, in Australia, most of these programs are located in acute public hospitals with significantly fewer transitions programs reported in primary health care, primary care or community settings.

It has been suggested that initiatives targeting new graduates to provide support in their transition from student to practitioner can be divided into six categories:

1. Externships.
2. Clinical ladder programs.
3. Preceptorship.
4. Mentoring programs.
5. Residency programmes and internships.
6. Transition or orientation to practice programs.[70]

Externships provide opportunities for student nurses to gain practical experience with short-term placement in a clinical area and are not considered further here. Clinical ladder programs focus on gaining promotion and providing recognition for developing skills, and are also not considered further here. There is some confusion in the literature regarding the difference between preceptorship and mentoring programs. The literature reviewed in this report did not provide a clear distinction between residency programs (which is largely a term used in the US) and transition or orientation programs. It was therefore decided to report on just two categories: (1) transition programs (including US residency programs); and (2) preceptorship and mentoring programs. Even this is not a clear distinction, as elements of preceptorship or mentoring can be part of a transition program.

A mixed-methods evaluation of transition programs in Victoria for nurses and midwives identified that 1338 new-graduate RNs were employed in transition programs in public health funded hospitals in Victoria during 2015. These new-graduate RNs were rotated to an average of 2.89 different clinical environments during their transition program. At the end of their transition program, 76% went on to be employed in RN roles (many part time) within the

Victorian public health system.[71] Despite searching for grey literature on this topic, no other comparable data were found from other jurisdictions in Australia.

5.4.1 Transition programs

Fifteen literature reviews were identified focusing on the effectiveness of transition programs in generic clinical settings. Of these, five reviews adopted a broad perspective by examining a range of outcomes and are listed in Table 7. The majority of the studies included in these reviews were conducted in the US. The reviews by Cochran[50] and Rush et al.[13] included both transition programs and mentorship/preceptorship programs. Interestingly, both Rush et al.[13] and Edwards et al.[11] covered a similarly broad range of transition programs and searched for studies over the same time period (2000 to 2011) yet only 12 studies were common to both reviews. This highlights the complexity in identifying and synthesising the literature in this area.

Table 7 Reviews of transition programs

Authors / Year published / Title / Reference	No. and type of studies included	Location of studies
Cochran, 2017. Effectiveness and best practice of nurse residency programs: a literature review.[50]	2 literature reviews, 13 studies (mix of qualitative, quantitative and mixed-methods)	US
Adams & Gillman, 2016. Developing an evidence-based transition program for graduate nurses.[41]	50 papers included, including both quantitative and qualitative studies.	Not specified
Letourneau & Fater, 2015. Nurse residency programs: an integrative review of the literature.[72]	10 studies and 15 descriptions of program development.	Acute care settings in the US
Edwards et al., 2015. A systematic review of the effectiveness of strategies and interventions to improve the transition from student to newly qualified nurse.[11]	30 studies, with a wide range of study types, including 1 RCT. 14 studies evaluated nurse residency programs; 7 involved orientation programs; 6 focused on preceptorship or mentorship; and 3 studies evaluated simulation programs.	US (24), Australia (2), UK (2), New Zealand (1), Thailand (1)
Rush et al., 2013. Best practices of formal new graduate nurse transition programs: an integrative review.[13]	47 studies, including generic transition programs (14) and programs based on a specific model: extended preceptorship (11); mentorship (7); residency (13); and internship (n = 2).	Specified as 'vast majority' from the US.

Another review focused on the content of transition programs.[69] The remaining nine reviews focused on particular outcomes, although most of these reviews also examined other outcomes:

- Retention and turnover.[10,70,73,74]
- Job satisfaction.[73,75,76]
- Clinical decision-making.[67]
- Leadership skills.[67,77]

- Competency development.[12]
- Patient safety.[12]

One review focusing on retention and turnover took a different approach to the other three reviews on the same topic by trying to identify which type of intervention, from within the broad scope of strategies that can be associated with transition programs, were most likely to result in improved retention and turnover, concluding that: 'promising interventions appear to be either internship/residency programmes or orientation/transition to practice programmes, lasting between 27–52 weeks, with a teaching and preceptor and mentor component'.[70, p 47]

Five Australian studies were identified which evaluated the effectiveness of generalist transition programs. Two of these were large mixed-methods studies commissioned by the Victorian Government to evaluate nursing and midwifery transition programs.[71,78] Despite a large volume of data being presented in these reports the inability to separate RN transition from midwifery transition programs made interpretation of the data difficult. The three additional studies were small-scale, local evaluations of transition programs with fewer than 100 graduates participating.[79-81]

5.4.2 Mentoring and preceptorship

Four literature reviews were identified summarising the evidence on mentorship and preceptorship, two of the most commonly-used strategies employed to support the transition of new-graduate RNs (Table 8). Findings regarding mentoring and preceptorship were also included in other reviews.[13,40,50,68,70]

There is some confusion in the literature between the roles of preceptor and mentor and the terms are sometimes used interchangeably despite their differing definitions. One of the literature reviews distinguished between the two roles as follows:

- A mentor is a role model for the new-graduate nurse who acts as a supporter and facilitator.
- A preceptor has a high level of knowledge and expertise who functions, at least in part, to evaluate and guide the new-graduate nurse in their professional development.[53]

No attempt has been made in this review to reconcile the definitional issues regarding mentorship and preceptorship.

In general, the literature is supportive of mentorship / preceptorship as practical mechanisms for supporting the transition process:

- Mentors / preceptors can positively influence turnover and retention.[70,82]
- Preceptorship can improve confidence and competence of new-graduates.[46]

Mentors / preceptors need to be carefully selected, provided with appropriate education and supported by management.[50,83] The relationship between mentor/preceptor and the new graduate is a vital determinant of whether positive outcomes are achieved.[12,53,68]

Few Australian studies focused on the issue of mentorship / preceptorship, but those that did arrived at similar findings to the international literature, including the importance of having a dedicated preceptor in meeting new graduates' expectations of support,[84] and facilitating learning in the workplace.[85]

One Australian study used phenomenology to explore the expectations of preceptors in graduate nurse transition. Three themes were identified:

- Balancing the preceptor role – helping and empowering new graduates in both professional and personal support, including discussion of work/life balance.
- Exploring past experiences reveals current expectations – this theme included linkages between how preceptors use their experiences as a new graduate to guide their preceptorship. The expectation was that new graduates were critical thinkers that advocate for their patients. Resilience and emotional intelligence were required to reflect on bad days and keep learning from experience.
- Developing relationships – personal characteristics were important in developing relationships. Older graduates had life skills, younger graduates adapted more quickly to new environments. Some preceptors believed older graduates made better nurses and when this occurred the preceptor was also older.[86]

Table 8 Literature reviews of mentorship / preceptorship

Authors / Year published / Title / Reference	Description of the review / included studies	Findings
Zhang et al., 2016. The effectiveness and implementation of mentoring program for newly graduated nurses: a systematic review.[53]	Searched for publications in English and Chinese. No limits on the period searched. Only included studies that evaluated the effectiveness of mentoring programs. 9 studies included: 6 from the US, 2 from China, 1 from Thailand.	Mentoring programs have positive outcomes for mentors, mentees and organisations and demonstrate 'promising success in facilitating new RNs' transitions into the workforce'. Success 'relies heavily on satisfactory mentor and mentee relationships', requiring an appropriate 'match' between mentor and mentee.
Irwin et al., 2018. Does preceptorship improve confidence and competence in newly qualified nurses: a systematic literature review.[46]	Included 14 papers, all from the UK (12 studies, 1 scoping review, and 1 service development paper), primarily qualitative (8) or mixed methods (4). 3 studies involved new-graduate midwives. None of the papers specifically addressed the research question (does preceptorship improve confidence and competence in newly qualified nurses?). Synthesis of findings relied on identification of themes from largely qualitative data.	The authors noted that none of the included papers defined competence or confidence. It was concluded that there is 'limited research' about the impact of preceptorship on the confidence and competence of new-graduate nurses. Interestingly, the authors also concluded that 'the impact of the wider team and a complex preceptorship is greater than the impact of an individual preceptor' (p 45).
Quek & Shorey, 2018. Perceptions, experiences, and needs of nursing preceptors and their preceptees on preceptorship: an integrative review.[82]	Took a broad perspective on the issue of nursing preceptorship. 11 of the 20 included papers involved either new-graduate RNs or their preceptors as participants. Majority of studies from the US, UK, Australia, Canada and New Zealand.	The authors concluded that the impact of preceptorship is 'significant', particularly for new-graduate RNs, but this was not largely framed in terms of the preceptor-preceptee relationship rather than improvements in skills, knowledge and attributes.
Whitehead et al., 2013. Supporting newly qualified nurses in the UK: a systematic literature review.[83]	The review focused on the development of preceptorship to support newly qualified nurses and included 24 studies from the UK (10), the US (3), Canada (3), Australia (2), Ireland (2), Sweden (2), Norway (1) and New Zealand (1). Studies published between 2001 and 2010, except for two earlier studies published in 1966 and 1996.	All the studies support the proposition that 'newly qualified staff require a period of support following qualification'. The review identified three main forms of support: (1) formal induction program without a preceptor; (2) 1:1 preceptorship for the first few months after entering the workforce; and (3) a combination of (1) and (2). It was concluded that preceptorship needs to be augmented by 'formal structures of support including peer support and mandatory training' (p 371).

5.4.3 Outcomes achieved by transition programs

The evidence from the international literature regarding the outcomes achieved by transition programs and mentorship/preceptorship programs is summarised in Table 9. Many of the reviews include findings based on a small number of studies. The contents of Table 9 are restricted to findings with a broader evidence base than this. Much of the research on effectiveness has focused on organisational outcomes such as staff turnover and retention, job satisfaction and cost effectiveness, rather than identifying improvements in the skills, knowledge and attributes of new-graduate RNs.

Table 9 Outcomes achieved by transition programs from the international literature

Outcome measure	Evidence
Staff turnover and retention	Some studies reported a reduction in turnover of new graduates 1-year after commencement of employment, however there was no evidence this was statistically significant. Minimal change in turnover 2 years after commencement.[10] There is a strong correlation between implementation of a transition program and increased nurse retention in their first year of employment.[73] Transition programs improve retention rates among new graduate nurses 'to an extent'. More longitudinal studies are needed to determine long-term retention.[74] Each study that measured turnover or retention before and after the introduction of a transition program demonstrated an improvement in either retention or turnover.[13] Graduate nurse programmes have a positive impact on turnover rates.[76] Programs with a mentorship or preceptorship component result in a reduction in turnover.[70]
Cost effectiveness	Several studies reported a positive return on investment due to a reduction in the costs of replacing nursing staff, due to reduced staff turnover.[10] Improved nurse retention has 'positive financial implications'.[73] Nurse residency programs are a cost-effective strategy to increase retention of new graduate nurses.[50] Improved retention of new graduates and decreased staff turnover due to transition programs resulted in cost benefits.[13]
Job satisfaction	Use of nurse residency programs demonstrated increased job satisfaction of new nurse graduates over a one-year period.[73] Transitional programs 'provide positive experiences for new graduate nurses, by increasing or maintaining job satisfaction, sense of belonging, [and] confidence'.[76, p 2431] The evidence that nurse residency programs result in improved job satisfaction is mixed, in part because so many other variables not directly related to the program can influence job satisfaction (e.g. the work environment and rostering).[75]
Improved skills, knowledge and attributes	Residency programs demonstrated 'improved new graduate nurses' competencies, skills and increased self-confidence'.[67, p 1025] 'This review found only a small number of low quality studies measuring competence before and after the introduction of a particular support programme. When this was the case, then internship/residency programmes (one study), mentorship/preceptorship (two studies) and a simulation-based programmes (one study) were effective in increasing perceived competence of graduate nurses'.[11, p 1266] 'Preceptorship does improve confidence and competence; although the link to improved confidence is clearer. Interestingly, the results indicate that the impact of the wider team and a complex preceptorship is greater than the impact of an individual preceptor'.[46, p 45]

Outcome measure	Evidence
	Three out of four studies to investigate job satisfaction and clinical competence at 12 months 'suggested that participants who undertook a structured supportive orientation and graduate programme showed non-significant increases in levels of self-confidence, comfort and sense of belonging'.[76, p 2428] 'Six studies demonstrated that mentoring programs had beneficial stress reduction outcomes and improved confidence, self-efficacy, decision-making, and the professional practice environment'.[53, p 142] Transition programs ≥ 24 weeks long 'have a positive impact on new graduate nurses' clinical leadership skills'.[77, p 135]

As can be seen from Table 9, the available international evidence indicates that some form of transition program can improve retention, reduce turnover, and increase the job satisfaction of new-graduate RNs, almost irrespective of the type of program provided.

The evidence with regard to improving the skills, knowledge and attributes of new-graduate RNs is much less clear. There are indications that transition programs can improve competence, but 'competence' is a very broad term and there is a lack of specificity in terms of the skills, knowledge and attributes which can be improved by a transition program. This makes it difficult to make firm recommendations about how to use transition programs to address any particular deficits in skills, knowledge or attributes.

The main attribute improved by transition programs is the self-confidence of new-graduate RNs. Given the complex and demanding nature of transitioning from student to practitioner (see Section 5.3) this can be considered a major benefit of such programs.

As detailed in Section 5.4.1, only five Australian studies on the effectiveness of generalist transition programs were identified, of which two contained data which were difficult to interpret. The following three paragraphs provide a summary of the other three studies.

The first used a mixed-methods approach to evaluate a Bachelor of Nursing Clinical Honours program delivered at one multi-state university. Quantitative data collection focused on evaluating the learning objectives of the program. Qualitative data was gathered from open-response questions using an online survey and through interviews with partner organisations where new-graduate nurses were working. No validated tools were used to collect data and no details were provided about the transition programs that participants in the university program were involved in simultaneously with their academic studies.[79]

Another study was undertaken using a mixed-methods design at one hospital in south-eastern Queensland.[80] Participants in the 2010 new-graduate transition program completed online surveys (n=78) and engaged in focus groups. The survey used modified versions of The Clinical Learning Organisational Culture Survey and the Student Clinical Learning Culture Survey. Overall, the experience of new graduates was positive. Participants 'agreed' that the following were present in their workplaces: sense of belonging (affiliation); sense of accomplishment (accomplishment); sense of worth (recognition); sense of engagement (active participation). Lower scores were obtained for new graduates perceptions that they could influence practice (influence). Three themes emerged from analysis of the focus group data: the importance of study days (in particular networking opportunities); positive working relationships with preceptors; and positive contribution of the nursing team where they worked. New graduates

identified that their greatest challenges occurred after hours when fewer resource people were available. Both formal and informal networks were seen as important.[80]

The final study was undertaken using cross-sectional surveys to evaluate changes in a transition program in far North Queensland.[81] The content of educational sessions or changes made to the program were not clearly outlined in the study, making interpretation of findings difficult. Data from participants in the 2016 program (n=35) and the 2017 (n=42) program were presented. The majority (83%) were employed on a part-time basis. Following the program, between 81% and 86% of respondents intended to remain at the organisation. In addition, both cohorts felt well supported by the Graduate Support Team (83% in 2016 and 93% in 2017). Reflective sessions were evaluated and issues with being able to attend and the confidentiality of discussion were outlined.[81]

None of these three Australian studies measured any of the outcomes identified from the international literature (e.g. staff turnover, cost effectiveness) and outlined in Table 9.

5.4.4 Role and effectiveness of specialty transition programs

The location of transition programs detailed in earlier sections of this review are often poorly described but the majority appear to take place in hospital settings, in many cases involving rotation through more than one area of clinical practice. As indicated in Section 1.3, Topic 3 includes examination of the role and effectiveness of programs which transition nurses into specialty areas. For the purposes of the review, what constitutes a 'specialty' was determined by the nature of the program, not whether a particular area of practice is considered to be 'specialist' or not. If a program targeted new-graduate RNs entering a particular area of practice, without rotation to other areas of practice, then, in the context of this review, it is referred to as a specialist program.

5.4.4.1 International literature

Searching the literature identified only six reviews of the literature focusing on the transition of new-graduate RNs to specialty areas, two focusing on mental health, and one each focusing on critical care, home health care, primary care and rural and remote care (Table 10).

The reviews included very few studies with any emphasis on measuring effectiveness and the detail provided about studies of effectiveness indicated that the main outcome evaluated was confidence. There was a strong emphasis on small-scale qualitative studies. Most of the studies included in the review focused on the structure and content of transition programs or the experiences of new-graduate RNs. In some instances it was difficult to determine whether studies focused solely on new-graduate RNs or on all RNs transitioning to the specialty.

Table 10 Literature reviews on the role and effectiveness of specialty transition programs

Specialty / Reference	Focus of the review	No. of included studies and location	No. of included studies of effectiveness
Mental health[87]	Experiences in first year of practice	22 papers, 14 studies (all except 1 from in-scope countries), 8 literature reviews or program reviews.	3
Mental health[88]	Transition programs and transition experiences	14 articles, all except 1 from in-scope countries.	1
Critical care[89]	Availability of transition support	29 studies and 1 literature review, all except 2 from in-scope countries	8
Home health care[90]	Factors that contribute to transition	6 studies from Norway (3), the UK (1), Canada (1) and the US (1).	1
Primary health care[91]	Transition to primary health care	19 papers of which only 9 are research studies, of which 6 from in-scope countries.	0
Rural and remote practice[92]	Transition support for new graduate nurses	12 studies and 1 literature review, all from in-scope countries, including 6 from Australia	2

No meaningful findings can be drawn from these reviews about the effectiveness of speciality transition programs.

5.4.4.2 Australian literature

Six Australian studies evaluating the effectiveness of specialist practice programs were identified, three from primary care and three in rural settings. No other studies were identified that evaluated specialist transition programs in critical care or other specialist areas of practice.

The studies undertaken in primary care settings were small in scale and used descriptive designs. Thomas and colleagues[93] reported the qualitative findings from their mixed-methods study that included four new graduates and five preceptors working in general practice settings in northern Sydney. Three themes from graduate nurse interviews were identified: opportunities for clinical education and development; job satisfaction; and career progression opportunities. Graduates were satisfied with learning opportunities and felt confident, competent and capable of independent practice. All participants found working in primary care satisfying. Participants acknowledged that there was a good future in primary health care due to government funding and needs of the population but acknowledged that career progression opportunities were more defined in the public health system. Participants described how they thought an acute-care new graduate program provided higher levels of skill acquisition and helped to consolidate the theory-practice gap. Two themes were identified from interviews with preceptors: program positivity; and early career opportunities. All preceptors were positive about the program and the graduates, indicating that the graduates were competent to work independently. Preceptors talked about early career opportunities for new graduates and made statements that indicated they thought new graduates should commence their careers in acute care settings to maximise their learning and opportunities.[93]

Aggar and colleagues undertook a pilot study in primary care,[85] and then a cohort study comparing nurses in a new-graduate program in rehabilitation/primary care settings with nurses in a generalist transition program in acute care.[84] Both studies used validated tools including the Six Dimension Scale of Nursing Performance and the Casey Fink Graduate Nurse Experience Survey. Data from the pilot study indicated that new graduate nurses in primary care were competent to work in primary care as assessed by the National Practice Standards for Nurses in General Practice.[85] Graduate nurse satisfaction with the program was high as were preceptor's experiences. The cohort study included 25 new graduates and 42 preceptors. All new graduates intended to stay working in nursing at the end of the transition program, with only 55% of nurses in primary care intending to remain nursing in that specialty.[84] Graduate experiences were compared between the two groups. There were no differences between groups in relation to the Six-Dimension Scale of Nursing Performance or confidence as measured by the Casey Fink Graduate Nurse Experience Survey.[84] The impact of combining a rehabilitation ward rotation with primary care was not examined in terms of outcomes.

Two primary studies and one literature review were found investigating the effectiveness of new-graduate transition programs in rural and/or remote settings. One study used grounded theory to evaluate new-graduate transition programs in 14 rural hospitals in South Australia.[48] Twenty-one new graduates participated in interviews. Three themes were identified: under prepared for practice; overwhelmed and abandoned; and need for clinical supervision. Participants reported that they did not feel prepared for role expectations, prioritising care needs and the need to multi-task and change priorities quickly when this was required. The role of team leader was experienced by most participants, a role they felt unprepared for, especially when caring for complex, deteriorating, patients who needed urgent care in an environment

that seemed to be poorly resourced. Participants reported that they were expected to work on their own and rapidly step-up to caring for complex and rapidly changing circumstances as soon as two months after commencement of their graduate year. The authors reported that promised supports such as preceptorship, workplace orientation, and provision of feedback did not eventuate. In addition, participants described how they did not have the skills or experience to practice without supervision in the early stages of their career and that they had a very high level of anxiety about making serious errors because they felt that they were working outside their scope of practice.[48]

Ostini and Bonner[61] completed a small-scale study that explored the experiences of five participants of a graduate transition program at a regional base hospital in western NSW. Four themes were identified: being supported; being challenged; reflections on being a new graduate; and reflections on a rural new graduate program. Participants in the program appeared to be very well supported but some challenges were identified, including doing new things for the first time, taking up learning opportunities, role ambiguity and moving theory to practice. Challenges were experienced at the time of rotations with this process seen to be stressful in the 3 weeks following rotation. Participants reported that they were disappointed with the availability of nurse educators to support them in some areas. Participants also described how the arranged mentoring program was not successful (due to not being able to meet with mentors or not engaging with the allocated mentor). Positive feedback was provided on the friendliness of the staff and patients and the support offered in this one regional hospital.[61]

The literature review examined primary research studies evaluating the effectiveness of new graduate transition programs in rural and remote areas.[42] As 7 of the 8 included studies were from Australia, a brief overview of the findings are presented here (the remaining study was conducted in the US). Two themes were identified: transition shock; and sense of belonging. Transition shock was experienced by many participants in the included studies. Transition shock may have been caused by unrealistic expectations, limited support for new graduates and role ambiguity. Sub-themes included: being overwhelmed with change; abandonment; and fractured reality. A sense of belonging refers to the process of becoming enculturated in a new environment and is frequently supported by preceptorship or mentoring. New graduates reported that it was not until the end of the transition program that they had a feeling of belonging and became more confident. Longer rotation periods appeared to improve their sense of belonging. Horizontal violence was experienced with a ‘sink or swim’ mentality being seen in how senior staff treated new graduates. Sub-themes included: social support; and horizontal violence.[42]

5.4.5 Comparing outcomes for nurses entering transition programs to outcomes of nurses who do not enter such programs

There is no data available on numbers of graduates from Bachelor of Nursing and Master of Nursing preparation programs (or their equivalent) who graduate from university, register as a nurse and are then unable to secure a place on a transition to practice program. Reports acknowledge that this occurs,[71,78] but there is no research available on the number of RNs who enter nursing practice outside of formal transition programs, or their outcomes.

No Australian studies were found which compared outcomes of new graduates which had experienced a transition program with a group which had not experienced a transition program. One international review of the literature, focusing on studies of turnover and retention of early career nurses, identified several studies employing a non-equivalent control group design.[70] Closer examination of these studies indicated that the methodology primarily involved the use of historical data on turnover and retention to provide the comparator for the intervention group completing a transition program. Using historical data in this way may be better than nothing, but is problematic. For example, historical data may not have been collected in a systematic and consistent way, and new-graduate RNs in the historical (control) group may have been exposed to some form of transition program, albeit not the one being studied.

Of all the studies that have investigated turnover or retention, only one quasi-experimental study with a control group was identified, conducted in the US over 10 years ago.[94] Participants in the intervention group were new-graduate RNs enrolled in a newly-developed transition program. The control group varied for two different aspects of the study: (1) the control group was new nurse graduates employed before implementation of the new transition program; (2) the control group was new nurse graduates employed in one department that did not participate in the new transition program. Nurses in the control group had higher turnover and lower retention than the intervention group.[94]

Another study was undertaken in a US Navy hospital, with the intervention group consisting of a small group of nurses enrolled in a 16-week, newly-developed, transition program.[95] The control group consisted of 10 new graduate nurses employed 6 months prior to implementation of the new program who had participated in what was described as the 'traditional' 6-week orientation program. Both groups rated their performance on 'organisational attributes' (e.g. core nursing skills, teamwork and communication). Their peers and first-line managers used a similar tool to rate their performance on the same attributes. The results indicated that nurses in the intervention group had higher scores (both self-rating and rating by peers/first-line managers) than the control group 6 months after completing their respective programs and that this was statistically significant.[95]

One cluster randomised controlled trial was found in the literature, conducted in 105 hospitals in three states of the US.[96] Hospitals were randomised to either implement a new transition program or retain their existing program. Control group hospitals were categorised into two groups, those with established programs and those with less well-developed (limited) programs.[96] Two tools were used to measure nurses' competency – the Overall Competence Tool and the Specific Competency Tool – at four time points: baseline, 6 months, 9 months, and

12 months. The tools were completed by each nurse and their preceptor. The study resulted in two important findings regarding competence:

- All three groups (intervention group, limited program group, established program group) achieved a statistically significant improvement in overall competence in their first 12 months of employment. The established group consistently demonstrated higher levels of competency across all four-time points, and this was statistically significant. However, the differences appear quite small and it is difficult to judge the practical or clinical significance of this given the limited discussion in the paper.
- All three groups demonstrated a statistically significant improvement in specific competencies over the 12-month period. Except for one of these competencies (use of technology) the differences between the three groups were not statistically significant. For the use of technology competency, the intervention group had a statistically significant improvement compared to the other two groups, although the researchers observed that this difference was small and may have no practical or clinical significance.[96]

Overall, the researchers concluded that the findings indicated the value of the established programs:

> *New nurses in the established transition programs, which were standardized, evidence-based, and in existence for at least 2 years, reported the best outcomes over time. They reported fewer errors, fewer negative safety practices, higher overall competence, less stress, and more job satisfaction, and they were less likely to leave their positions.*[96, p 34]

The researchers used their findings to support the need for structured, evidence-based, transition programs while seeming to downplay the fact that the control-group hospitals with less well-developed programs achieved outcomes that were comparable to the other hospitals in the study. In Section 5.4.3, the evidence suggests that improved outcomes from transition programs occur irrespective of the type of program. The authors of one of the reviews, which supported that finding, concluded that:

> *The overall impact of support strategies appears positive, irrespective of the type of support provided. This may suggest that it is the organisations' focus on new graduate nurses that is important, rather than simply leaving them to acclimatise to their new role themselves.*[11, p 1254]

This conclusion provides an alternative way of interpreting the results of the randomised controlled trial.

5.5 Measurement

This section explores the various approaches used to determine the presence (or absence) of the skills, knowledge and attributes that a new-graduate RN needs to be adequately prepared for practice on entering the nursing workforce. Investigation of this issue has involved four types of studies:

1. Studies using interviews, focus groups or surveys to identify the perceptions of new-graduate RNs about their own skills, knowledge or attributes (Section 5.2).
2. Investigation of the perceptions of stakeholders who work with beginning practitioners about the skills, knowledge and attributes of beginning practitioners (Section 5.2).
3. Studies involving the formal assessment/measurement of the skills, knowledge and attributes of beginning practitioners (either by beginning practitioners or those they work with).
4. Studies of the effectiveness of transition programs, which may involve assessment of the skills, knowledge or attributes of new-graduate RNs at one or more point during the program (Section 5.4).

In published studies, there is a heavy reliance on new-graduate self-assessment of their own capabilities or the perceptions of their co-workers. There have been few attempts to compare perceptions of competency between new-graduate nurses and their colleagues. One literature review reported the findings from three such studies which 'resulted in 3 distinctly different outcomes including 1 study with higher colleague ratings, 1 with higher NGN [new graduate nurse] ratings, and 1 with similar ratings'.[12, p E47]

One recently published literature review explored the various instruments which have been used by nurse residency programs to evaluate outcomes. The 15 included studies employed 26 separate instruments, many of which were not directly related to the measurement of skills, knowledge and attributes (e.g. measures of job satisfaction, job stress and intent to leave).[97] Two other reviews of the literature included a compilation of tools for evaluating the effectiveness of transition programs and the competency of new-graduate RNs.[23,72] These three reviews and findings from the Australian literature were used to compile a list of what appear to be the most commonly-used tools to measure the skills, knowledge and attributes of new-graduate RNs (Table 11).

The Casey-Fink Graduate Nurse Experience Survey has been one of the most widely-used tools to measure the performance of new-graduate RNs, particularly in the US where it was developed, although its use appears to have declined in recent years.[98,99] The most widely-used generic tool for measuring the competency of RNs is the Nurse Competence Scale.[100] A recent review of its use included 30 studies involving over 11,000 competency assessments. However, less than 20% of these studies took place in countries in scope for this review, three in North America and two in Australia, with the majority of studies conducted in Finland. Six of the studies involved new-graduate RNs. In all but one of the studies, competency was self-assessed.[100]

The measurement of skills, knowledge and attributes of new-graduate RNs in Australia has followed a similar pattern to the international literature, with the use of some additional tools. Tools without any data about their validity have been excluded from Table 11.

Despite the use in Australia of four validated tools (Casey-Fink Graduate Nurse Experience Survey, Nurse Competence Scale, Six Dimension Scale of Nursing Performance (Six-D), Work Readiness Scale) to measure the knowledge, skills and attributes of new-graduate RNs it is evident that these tools are not being used widely to evaluate RN competency or the impact of transition programs on the development of knowledge, skills and attributes among new-graduate RNs. If there were greater consistent use of validated tools it would be easier to develop useful findings and recommendations about the competency of new-graduate RNs and the impact of transition programs.

Table 11 Instruments used to measure skills, knowledge and attributes of new-graduate RNs

Tool / Reference	Description
Casey-Fink Graduate Nurse Experience Survey	Developed in the US,[98,99] the tool has been used in Australia.[84,85] Specifically designed to measure the experiences of new graduate nurses entering the workplace, the tool is self-rated, and starts by asking those completing the tool to list the top three skills/procedures they are uncomfortable performing independently, with a drop-down list of skills included at the end of the tool. This is followed by 25 items using a 4-point Likert scale with statements about, for example, communicating with doctors; caring for dying patients; prioritising patient care; patient care responsibilities and workload; and communicating with patients and their families.
Gerber's Control Over Nursing Practice Scale	Not specifically developed for use with new-graduate nurses, the tool has been used internationally to evaluate transition programs,[97] and does not appear to have been used in Australia. 21-item instrument, using a 7-point numerical rating scale (1 = disagree to 7 = agree), to measure freedom and power to make autonomous decisions in nursing practice, with subscales: clinical leader, evaluation, and skilful team member.
Nurse Competence Scale	Much of the work to develop and use the tool has taken place in Finland.[100] Not specifically developed for use with new-graduate nurses but has been used extensively, including in Australia.[28,29] Measures competence, critical thinking, and clinical reasoning. Generalised for multiple patient care areas. 73 items in seven domains related to nurse competence. Domains include: helping role; teaching-coaching; diagnostic functions; managing situations; therapeutic interventions; ensuring quality; and work role. Participants are asked to indicate their level of competence on a visual analogue scale (0 to 100mm) where 0 is low and 100 is very high. Respondents are asked to nominate the frequency of use of the items in practice using a 4-point Likert scale (0 = not applicable in my work, 1 = used very seldom, 2 = used occasionally and 3 = used very often).
Six Dimension Scale of Nursing Performance (Six-D)	Developed in the US,[101] this tool has been used in Australia in primary health care.[84,85] Assesses graduate nurse's perceptions of their competency. Can be used by preceptors, managers and graduate nurse program coordinators. Originally 52 items grouped into six performance subscales. Items 1-42 are scored twice once for how often the event occurs and the second time for nurse perception of competence. Six sub-scales: leadership; critical care; teaching/collaboration; planning/evaluation; interpersonal relations/communications; and professional development.
Work Readiness Scale	Originally developed in Australia as a generic 64 item work readiness scale for university graduates.[102] Adapted to a 33 item scale which is scored using a 10 point Likert scale (where 1 = completely disagree and 10 = completely agree).[44] Sub-scales include: organisational acumen; social intelligence; personal characteristics; and work competence

5.6 Independent external assessments (pre-registration)

The purpose of standardised examinations for nurse registration is to ensure that new licensed nurses are safe to practice. The National Council Licensure Examination for Registered Nurses (NCLEX-RN) is the most notable standardised examination, used throughout North America and introduced into Canada in 2015.[103] The NCLEX-RN is administered by individual State Nursing Boards and measures the minimum knowledge, skills and abilities required by nurses to provide safe, effective care at a beginning level.[104,105]

Canada has a long history of using a standardised examination, with the Canadian Registered Nurse Examination, developed in Canada, introduced in 1970. The change to the NCLEX-RN resulted from several years of investigation regarding the best approach for conducting an entry-to-practice exam. The main factors influencing the decision to change appear to have resulted from the advantages of a computer-based test such as the NCLEX-RN, compared to the previous pen and paper format. For example, automation of marking, faster feedback to students and more frequent assessment.[103]

Despite standardised examinations such as the NCLEX-RN, there is debate around the practice readiness of nursing professionals and the degree to which a baccalaureate program prepares individuals for safe and effective practice.[104] This suggests that standardised examinations are not the 'gatekeeper' that determines graduate readiness,[106] or an adequate assessment of the knowledge and skills for practice.

Passing or failing the NCLEX-RN depends on performance in the examination compared to a set standard that is deemed to represent a safe level of competency for entry-level nurses. The percentage of candidates that either pass or fail the examination is not pre-determined (i.e. the exam is criterion-referenced rather than norm-referenced). The standard for passing the examination is the same across the US, but changes over time in response to changes in nursing practice.[107]

In addition to ensuring newly-licensed nurses are safe to practice, the NCLEX-RN first time pass rates are used to assess the overall quality of North American nursing education programs. The NCLEX-RN first time pass rate is defined 'as the proportion of students from a program who pass the NCLEX-RN on their first attempt'.[108, p 4] Each State Nursing Board defines the NCLEX-RN pass rate; however, this standard widely varies from state to state[109] and in addition, some smaller nursing programs have different set standards. A study of pass rates for nursing programs found that there was no uniformity in State-set pass rate standards, suggesting that using pass rates as an indicator for the quality of nursing education programs is problematic.[109]

Much of the focus in the literature seems to be on how to pass the exam and the importance of pass rates for nursing faculties (see Lavin and Rosario-Sim[110] and Serembus[111]). In the US, many schools of nursing have adapted their programs to increase the likelihood of their students passing the NCLEX-RN exam.[112] However, no studies were identified which demonstrated that using the NCLEX-RN resulted in an improvement in the skills, knowledge and attributes of new-graduate RNs. Additionally, there were no discernible differences in the issues and transition experience reported in the literature from the US and Canada compared to other countries that do not have the NCLEX-RN.

In New Zealand, the Nursing Council of New Zealand is responsible for the registration of ENs and RNs. Prior to registration, applicants must pass the State Final Examination. The examinations consist of multiple-choice questions, with the results issued as a pass or fail. Applicants are able to take the examination up to a maximum of three times, and must achieve a pass within one year of the completion of their studies. Each of the examinations encompasses four key categories. For RNs, the categories are safe/effective environment, physiological integrity, psychosocial integrity and health promotion/maintenance.[113]

In Australia, standardised examinations for nurse registration were discontinued when nurse education was transferred to the tertiary education sector. However, the debate around standardised examinations is sometimes raised as a potential strategy to improve graduate readiness. Missen, McKenna and Beauchamp[114] surveyed qualified nurses to ascertain their views on national examinations. Of the 148 respondents, 50% supported, 45% opposed and 4% were unsure. Participants who supported a national examination suggested an examination would ensure a consistent standard of nurse education, those who opposed a national examination suggested that graduates had already passed a series of assessments and examinations and were deemed competent to practice according to the national standards. Caution is needed interpreting the results of this study because no response rate is reported, simply the number of respondents, so it is not known how representative the responses are of all qualified nurses.[114]

Wellard, Bethune and Heggan[106] suggest that national examinations are reductionist in nature as they ignore the complexity of nursing knowledge that is needed for practice. Any assessment therefore, must be consistent with the complexity of knowledge that is required to support contemporary nursing practice.

5.7 Pre-requisites for entry to pre-registration programs

Strengthening admission criteria for pre-registration programs is one suggestion designed to improve the quality of graduates. However, identifying additional admission requirements based on defendable criteria is difficult, given the limited research in this area particularly from an Australian context. Internationally, student success in nursing baccalaureate programs is often linked to NCLEX-RN success, however the range of admission assessment criteria and examinations make drawing a conclusion difficult. In addition, many pre-registration programs in North America do not admit students directly but rather after they have completed a set of classes of liberal arts and sciences at the university (usually one or two years of study).

The literature addresses several types of admission processes including an interview, grade-point average (an average of final grades) or admission assessment examination. Students who enter pre-registration nursing programs with previous higher educational qualifications perform consistently better than those with lower-level entry qualifications.[115] Previous academic achievement, as measured by grade-point average, is the best predictor of success particularly in the first year of a Bachelor of Nursing.[116] There is a significant relationship in pre-admission grade-point average and timely progression through a Bachelor of Nursing program.[117-119] Furthermore, students who had previously studied a science and had a high cumulative science grade-point average were found to be more successful in a Bachelor of Nursing program.[120] In addition, some studies report that students who are 26 years and older

tend to perform better.[115] While not statistically significant, this finding highlights the importance of looking broadly at admission criteria.

Admission assessment examinations, while varied, are designed to measure overall academic preparedness of students entering a Bachelor of Nursing program. The international literature on pre-admission requirements is concentrated in the US where pre-admission examinations and courses are commonly included in the requirements for entry to nursing programs.[117,121] There are a range of standardised tests used across the US, including the Test of Essential Academic Skills, the Nurse Entrance Test, the Health Education Systems Inc. and the American College Test.[121]

Several studies found that admission assessment examinations were valid predictors of early academic success, as they provided objective data on an individual's academic ability.[122,123] Wolkowitz and Kelley[123] reported that students who performed better in the science and reading components of the admission assessment examination had better program success. This suggests that more emphasis should be placed on a student's ability in science and reading, rather than other areas including mathematics or English. However, In a survey of Australian nurse academics it was found that pre-requisite subject areas including basic knowledge of science and mathematics were important to student success.[124] Most participants also believed that a minimum tertiary entrance score should be set and that international students should be required to demonstrate English language proficiency equivalent to the registration standards for Australian nurses.

Interviews were not a predictor of student success unless they were combined with other measures such as grade-point average.[125] Results in one study found non-cognitive tools, such as interviews, did not predict course success.[119]

Studies are available that examine the relationship of these pre-admission test scores with success in the NCLEX-RN and varying combinations of other requirements.[117,122,126] There is much pressure on course providers to admit students that are considered to be likely to pass the NCLEX-RN on the first sitting[117] as student outcomes are related to course accreditation.[127] This has resulted in a focus on academic performance in pre-admission requirements[121] to the neglect of the investigation of combined approaches that consider a range of student attributes.[128,129]

A review paper published in 2012 included 36 studies investigating factors that impact on nursing students' academic performance. The review concluded that:

> *… students' academic performance is affected by many factors including: age, gender, English as a second language, employment status, admission qualifications, within program performance, critical thinking skills, personality, self-efficacy and academic engagement.*[121, p 910]

This broad range of factors indicates the complexity inherent in trying to establish pre-requisites for entry to pre-registration programs.

6 Results – enrolled nurses

Searching the literature identified no literature reviews focusing on new-graduate ENs (or their equivalent in other countries) and only five Australian studies focusing on either the skills, knowledge or attributes of ENs or transition programs for ENs (Table 12). Four studies were conducted in either Victoria or Queensland; the location of one study is not specified. Two studies examined the transition of ENs to employment within mental health services.

Like the RN literature, these studies were generally small in scale and of poor quality (e.g. low or non-existent response rates). There is insufficient evidence from these studies to guide future interventions addressing the skills, knowledge and attributes of new-graduate ENs or the transition of ENs to the workplace. However, it is worth noting that the authors of one study involving a transition program for ENs in a forensic mental health hospital concluded that the mental health component of the Diploma of Nursing 'does not adequately prepare ENs to enter the mental health workforce without the support of a transition program'.[130, p 21]

In addition to the studies outlined in Table 12, two papers report the results of an online survey emailed to senior nurses in Victoria. The first paper reports the responses to a question which asked whether pre-determined nursing responsibilities were the role of (1) a graduate RN; (2) a graduate EN; (3) both; or (4) neither.[33] The second paper analysed the responses to two open-ended questions about the similarities and differences in the role and scope of practice for RNs and ENs.[131] The results indicated 'considerable variation in participants' expectations of graduate ENs'.[33, p 433] This was particularly the case for skills included in the Diploma of Nursing course introduced in 2010 for EN education, indicating a lack of understanding of ENs' educational preparation. Open-ended responses indicated a perception that differences in the roles of ENs and RNs had decreased. The results did not include any data about the skills, knowledge or attributes of new-graduate ENs.

Table 12 Included papers with a focus on enrolled nurses

Authors / Year published / Title / Reference	Description of the paper	Findings
Faithfull-Byrne et al., 2017. Back to the future: a practice led transition program from assistant in nursing to enrolled nurse.[132]	Describes a Queensland project in which a health service and Institute of Tertiary and Further Education collaborated in the delivery of a hospital-based Diploma of Nursing Program. The program was open to assistants in nursing already employed in the hospital. Nurse educators delivered the theoretical and practical components of the program.	The paper frames this project as a quality improvement initiative rather than a research study. Program costs were high, for both students and the hospital. The only outcomes reported were completion rate (78%) and employment rate (all graduates of the program were employed).
Healy & Reed, 2015. Report on the transition to practice needs of newly graduated enrolled nurses and postgraduate (entry to practice) midwives.[133]	Project commissioned by the Department of Health Victoria to identify the transition to practice needs of new-graduate ENs as part of a larger study that included midwives. Methods included a literature review, consultation with stakeholders, and a Graduate Enrolled Nurses Survey distributed to managers involved with ENs in all Victorian hospitals. 38 responses to the survey but response rate unreported.	Stakeholders strongly believed that the new Diploma of Nursing 'signalled a change in the status of enrolled nurses' (p 29). In general, EN transition-to-practice activity was supported and perceived to lead to benefits (e.g. improved clinical skills and knowledge). Some believed that because ENs are meant to be supervised by RNs, they do not need transitional support.
Hegney et al., 2013. Queensland nursing staffs' perceptions of the preparation for practice of registered and enrolled nurses.[134]	Reports the findings from responses to one open-ended question in a 70-item questionnaire sent to members of the Queensland Nurses Union of Employees in 2007 and 2010 ('please list for us five key issues and strategies that you see could improve nursing and nursing work'). Data in the paper indicates the combined response rate was about 22%.	There are no findings specific to enrolled nurses. The authors conclude that the majority of respondents believe that RNs and ENs are not adequately prepared for the workplace, with insufficient clinical experience and inappropriate curriculum content.
Porter et al., 2017. Transition to practice program: new directions for recruiting and retaining enrolled nurses in mental health.[135]	Evaluation of transition program in mental health for new-graduate ENs. Jurisdiction not specified. Program delivered by hospital-based nurse educators and recognised as equivalent to 3 units of an Advanced Diploma of Mental Health. Each EN assigned an RN or EN preceptor. Confidence survey completed during the program.	7 ENs completed the program, of which 4 responded to the survey. The survey scores indicated that the ENs felt confident to work in the mental health setting (answers ranged from 3-5 on a 5-point Likert scale, with 5 equating to 'extremely confident').
Quinn, 2016. A mental health nursing transition program for enrolled nurses at a forensic mental health hospital.[130]	Study involving 9 ENs who had completed a Diploma of Nursing enrolled in a 6-month transition program in a forensic mental health hospital in Victoria. Not restricted to new graduates, 6 of those enrolled in the program had completed their training within 2 years of program commencement. Evaluation comprised 3 surveys, administered at initial orientation, 2-4 weeks after orientation, and at program completion.	ENs were satisfied with the program and 'expressed that staff were accepting of them and welcomed their clinical input' (p 20). They identified the support of preceptors and clinical nurse educators as important aspects of the program. The ENs demonstrated a lack of knowledge of the 'core foundations of mental health nursing'.

7 Results – nurse practitioners

Seven literature reviews and three Australian studies relevant to NPs and Topic 1 were identified and included. One Australian study was reported in three separate papers. In deciding what to include, the key issue was whether the paper focused on (1) preparedness for practice of new NPs; (2) the process of transition from RN to NP, or (3) any sort of program to prepare RNs for practice as a new-graduate NP. Some elements of all three are potentially present in just about any published study about NPs. However, reviewing all of the NP literature was beyond the scope of this review. A review of the Australian research regarding NPs published in 2014 was included as it provides insights into some of the transition issues to be found in the broader NP literature, particularly factors influencing implementation of the role.[136]

In searching the literature it was apparent that there has been heightened interest in the topic of NP role transition in recent years. Studies of NP role transition and the use of transition programs of one form or another have almost exclusively been conducted in the US, often as part of NPs completing doctoral dissertations. However, these studies are not considered here because this review is limited to international reviews of the literature and Australian studies.

In 2015, two researchers, one Australian and one from the US, published papers with identical titles (Nurse practitioner role transition: a concept analysis) which included reviews of the literature to develop the concept of NP role transition.[137,138] As far as can be ascertained, these were the first published papers to address the issue:

- The Australian review did not specify the number of included papers but indicated that most came from the US, UK and Taiwan [138]. The review identified the importance of a supportive professional and organisational structure. It was concluded that 'transition is a multiphase experience that requires a period of adjustment by the NP and often an attitudinal change by the other members of the healthcare team'.[138, p 396]
- The second review included 30 papers: 12 examining NP role transition; seven examining transitions in other nursing roles; five theoretical papers focusing on transition; and six papers from the business and psychology literature.[137] It was concluded that there is no comprehensive definition of the concept of NP role transition but that the concept has four 'defining attributes':
    1. Absorption of the role, as the nurse moves from the RN role to the NP role.
    2. The shift from provider of care to prescriber of care. This results in what is described as 'a dramatic increase in the clinician's autonomy and responsibility toward the patient's health care', which can be both an 'exciting and positive' change but also a daunting change.
    3. Straddling two identities – the NP has moved beyond the RN role they are used to and is not a doctor. Some NPs feel like they are an 'imposter'.
    4. Mixed emotions. This is most frequently cited in the literature as 'exciting, stressful, anxiety, nervous, overwhelmed, frustrated, feelings of inadequacy especially surrounding knowing and not knowing, ambivalence about the role, uncertainty, not

fitting in or not belonging and isolation, and a longing to return to the prior role'. All except the first are negative emotions.[137, p 140]

Both papers referenced the work of Benner on nursing expertise and Duchscher on transition shock (see Section 2). As the result of the second review, a definition of NP role transition was proposed:

> *NP role transition is a process consisting of multiple mixed emotions that occurs over time, and is a period of great personal development and learning as the NP takes on new autonomy and responsibility for patients. This process occurs as the new NP moves out of the RN role and absorbs the NP role, and is affected by personal and environmental antecedents, which can lead to a successful or unsuccessful role transition.[137, p 142]*

In addition to the reviews of the literature in these two 'concept' papers, Moran and Nairn[139] synthesised the evidence from qualitative studies of role transition as it affected trainee advanced clinical practitioners (the term they used in their paper). Although this is a broader perspective than 'nurse practitioner', 9 of the 11 included studies used the term 'nurse practitioner'. Five of the included studies were from the US, four from England and one each from Canada and Holland. Relevant findings included:

- Many NPs 'seriously underestimated' the difficult and challenging nature of transition.
- Support from mentors was the main positive influence on transition.
- There were many problems instituting and maintaining a model of clinical supervision for NPs.
- Some NPs perceive they are inadequately prepared for the role.[139]

Table 13 summarises the Australian studies which investigated the experiences of role transition for NPs. The findings of MacLellan et al.[140] very much mirror the experiences of new-graduate RNs entering the workforce for the first time (a mix of personal, inter-personal and organisational factors). A second paper resulting from the same study highlights the difficulties encountered by nurses seeking endorsement as an NP during the change from state-based to national registration but also emphasises some of the broader issues, described as 'ongoing political agendas, turf wars, and professional hierarchies'.[141, p 146] A third paper from this study expands on the difficulties encountered by NPs working with other nurses and health professionals from other disciplines. The paper concludes with an observation that 'there seem[sic] to be an unmet assumption that these expert clinicians would be able to 'hit the ground running' and for this reason few were provided with formal mentorship or regular opportunities for clinical supervision'.[142, p 5]

Table 13 The experience of NP role transition in Australia

Authors / Year published / Title / Reference	Description of the review / included studies	Findings
Leidel et al., 2018. "It's about fitting in with the organisation": a qualitative study of employers of nurse practitioners.[143]	Semi-structured interviews with 23 employers of NPs in the public and private sector in Western Australia, from hospitals, pharmacies, aged care facilities and general practices.	Employers recognised the benefits of employing NPs (e.g. improved health outcomes) but also identified 5 barriers to employing NPs: (1) there is no financial benefit; (2) NPs were unnecessary because they do not fill a gap in existing services: (3) NPs lacked experience and qualifications; (4) some NPs lack commitment to the organisation; (5) resistance from other health professionals, particularly doctors and nurses.
Lowe et al., 2016. Perceptions of NP Roles in Australia: nurse practitioners, managers, and policy advisors.[144]	Survey of NPs, nurse managers and nurse policy advisers, which included many questions with a 5-point or 6-point Likert scale. Summation of responses was used to determine an overall perception rating of the NP. There was a 31% response rate (171/544) although the authors claim a 36% response rate.	Respondents in NP and nurse manager positions had similar overall (favourable) rating of the NP role. Nurse policy advisers had a much lower overall rating of their perception of the NP role. However, this may mean very little as the nurse policy advisers constituted by far the smallest group of respondents (7), compared to NPs (87) and nurse managers (77). Even a small change in the number of nurse policy advisers responding to the survey could have materially impacted the results. The paper does not present the results for individual questions, which may have provided useful information about certain aspects of NP role transition (e.g. confusion about the NP role, how the NP roles fit into existing services.
MacLellan et al., 2017. An exploration of the factors that influence nurse practitioner transition in Australia: a story of turmoil, tenacity, and triumph.[140] Two other papers report findings of the same study.[141,142]	10 newly-appointed NPs were each interviewed 3-4 times over a 12-month period, 32 interviews in total.	The findings were framed in terms of personal factors (e.g. inability to meet own expectations and the expectations of colleagues); intra-professional factors (e.g. professional jealousy of other nurses); inter-professional factors (developing relationships with doctors and allied health staff); and organisational factors (particularly due to the changeover from state-based to national regulation).

The studies in Table 13 are all small in scale and constitute a relatively modest evidence base upon which to base any conclusions. However, many of the factors are strikingly similar to those influencing the transition experiences of new-graduate RNs making the change from student to clinician, overlaid with a set of factors specific to the RN role: lack of clarity about the role of NPs; meeting the expectations of others about the role; and lack of clarity about how the role 'fits' with existing services.[140]

Additional support for the complex nature of the transition process comes from the previously mentioned review of Australian studies on the NP role. Although not specifically focused on transition, the review identified a similar set of issues to those outlined above:

- Lack of understanding of NP roles.
- NP roles can be challenging, particularly in the first 12 months.
- The ability to work collaboratively with other health care providers is a key component of being an NP.
- Lack of organisational support for the NP role, particularly from other nurses.
- Support and acceptance by medical staff is important to the development of the NP role.[136]

7.1 Effectiveness of transition programs for NPs

Two reviews were identified of relevance to the effectiveness of NP transition programs. The first is not a review of the research literature, rather an environmental scan of NP residency and fellowship programs in the US. Such programs are relatively new and according to the review 'lack standardization in terms of organisation, management and structure'.[145, p 483] Sixty-eight programs were identified, comprising 31 residency programs and 37 fellowship programs. About 90% of the programs were 12 months in length, covering a diverse range of clinical specialties. There is some confusion about the nomenclature, but residency programs tend to be run in community settings and fellowship programs in hospital settings. The paper contains no information about the outcomes achieved by these programs but does note that 'little evidence exists as to whether these programs successfully prepare NPs to deliver better care'.[145, p 486]

Another review, also of residency and fellowship programs in the US, provided a summary of the methods used to evaluate the programs, based on the 19 included papers.[146] Evaluation methods included self-assessment, measures of competency, mentoring, development of portfolios by NPs, simulation-based learning, and written evaluation. Each of these methods serves the dual purpose of professional development for the NP and evaluation of the program.[146] Unfortunately, as with the first review, the paper contains no data about the results of these evaluation methods.

One review of the international literature was identified focusing on NP transition into a specific practice area; a systematic review of the evidence regarding the perceptions of primary care NPs of their preparedness for their initial NP role and the barriers and facilitators influencing role transition.[147] Nine articles were included in the review, including seven studies utilising focus groups, interviews and surveys to collect data. The findings were similar to those from the papers referred to earlier in this section and included role ambiguity (the feeling of being an 'imposter' was raised again); lack of understanding by colleagues of the NP role; and negativity about the role expressed by colleagues. Most of the included studies referred to NPs'

self-doubt and lack of preparation for the role.[147] Given the nature of the included studies, the review contained no findings about effectiveness of transition programs.

8 Summary of the results

8.1 Registered nurses

Search results

- Forty-one international literature reviews and 39 Australian studies were identified which explored the competency of new-graduate RNs, the experiences of new-graduate RNs during transition, and the effectiveness of transition programs for new graduates in both generalist and specialist settings.
- Despite the wide-ranging nature of the international literature, much of the evidence within each literature review is weak, with 'findings' often relying on the results of one or two small studies.
- Australian studies have employed a wide variety of methods including quantitative, qualitative and mixed methods designs, with qualitative research predominating. However, few used well-validated scales for measuring outcomes.
- No Australian studies were found that explored patients' / consumers' perspectives of new-graduate RNs' competence in the first year of practice.
- No Australian studies were identified that examined the experiences of new-graduate RNs who were not employed in transition programs.

Fit for purpose / work ready / transition to practice

- Research on work readiness has largely relied on surveys, interviews or focus groups to investigate the perceptions of new-graduate nurses about their own skills and knowledge, or the perceptions of their colleagues.
- Validated tools to measure different aspects of work readiness have been developed but not been utilised to any great extent, particularly in research conducted in Australia.
- The international and Australian literature describes lack of work readiness of new-graduate RNs as occurring in nine areas: clinical or technical skills; communication skills; knowledge; confidence; critical thinking; end-of-life care; inter-professional collaboration; organisational skills; and priority setting.
- Transition from being a student in a university to a clinician results in what has been described as 'reality shock' or 'transition shock' when nurses realise they have not been adequately prepared for the work that awaits them. This phenomenon has been well recognised in the literature for many years.
- Transition from student to clinician, including the ability to function effectively in the workplace, is influenced by many factors other than the skills, knowledge and attributes of individual nurses.
- The international and Australian literature indicates that factors influencing transition from student to clinician can be categorised into three elements: (1) the personal characteristics of each nurse (e.g. prior experience, resilience); (2) their interpersonal relationships with colleagues (which may include a fair amount of incivility); and (3) the context within which they work (e.g. staffing levels, rostering).

Transition programs

- The structure and content of transition programs vary widely, making it almost impossible to aggregate findings about program effectiveness and to 'separate out' what improvements may be due to transition programs and what may be due to other factors.
- Studies of transition program effectiveness have focused on organisational outcomes (e.g. staff turnover and retention, cost effectiveness), rather than improvements in the skills, knowledge and attributes of new-graduate nurses.
- There has been limited Australian research evaluating the effectiveness of transition programs.
- The international literature indicates that the main attribute improved by transition programs is the self-confidence of new-graduate RNs.
- The general impression from the Australian and international literature is that transition programs are seen more as a recruitment and retention strategy to maintain staffing levels rather than as a way of improving nursing expertise or quality of nursing care.
- In general, the findings support the use of mentorship / preceptorship as a practical strategy for supporting the transition of new-graduate RNs.
- There is an absence of studies comparing outcomes between those who complete a transition program and those who do not, particularly in Australia.
- New-graduate nurses are likely to be on a 'steep learning curve' during their transition into employment, irrespective of whether they are involved in a transition program or not, thus confounding the results of any study which does not have a control group.

Specialty transition programs

- The international literature on the outcomes achieved by specialty transition programs is sparse and does not allow meaningful conclusions to be drawn about effectiveness.
- Australian studies of specialist transition programs are limited to primary care and rural settings. The results of these studies reflect the broader literature on transition programs.

Independent external assessments such as pre-registration examinations

- The NCLEX-RN examination has been used throughout the US for many years as a standardised examination prior to registration. No studies were identified which demonstrated that the NCLEX improved the skills, knowledge and attributes of new-graduate RNs. Much of the focus of the literature is about how to pass the exam and the importance of pass rates for nursing faculties.

Utilisation of pre-requisites for entry to pre-registration programs

- There is very limited research, particularly from Australia, on using pre-requisites for entry to pre-registration programs to improve the skills, knowledge and attributes of students completing nursing programs.
- Potential pre-requisites reported in the literature include previous higher education qualifications; previous academic achievement; previous studies in science or mathematics, either at school or university; proficiency in English; achievement in admission assessment examinations; and tertiary entrance score.

- New-graduate RNs transitioning into the workplace with previous experience as an EN do not appear to have any advantage over new-graduates making that transition without that experience.

8.2 Enrolled nurses

- Searching the literature identified no literature reviews focusing on new-graduate ENs (or their equivalent in other countries) and only five Australian studies focusing on either the skills, knowledge and attributes of ENs, or transition programs for ENs.
- The paucity of research on the transition of new-graduate ENs to the workplace is insufficient to guide decisions about how best to facilitate transition.

8.3 Nurse practitioners

- Seven literature reviews and three Australian studies focused on NP role transition were included in the review. One Australian study was reported in three separate papers.
- The international and Australian literature indicates a heightened interest in recent years in the topic of nurses transitioning from RN to NP.
- Despite the limited scope of the international and Australian literature, the findings about role transition for NPs are very similar to those identified for new-graduate RNs. Many NPs underestimate the difficult and challenging nature of transition; some NPs are inadequately prepared for the role; and there can be active resistance to a new NP role from other health professionals.

9 Discussion

As is typically the case with reviews of the literature, this review includes many observations about the quality of the available research, not just the quality of individual studies but also the limited scope of many of the included studies. However, simply saying there is not enough evidence (there is never enough) is not useful to anyone. Despite the limitations, it has been possible to develop a comprehensive set of findings (Section 8) which can form the basis for discussing the issues outlined in this review.

9.1 Work readiness

None of the papers included in this review used the terms 'fit for purpose' or 'fit for practice' when referring to the skills, knowledge or attributes of new-graduate RNs. There were occasional references to the need for nurses to 'hit the ground running' when entering the workforce but the most frequent way in which the issue was framed was with the term 'work readiness'.

Validated tools to measure work readiness are available but are rarely used. For example, the Work Readiness Scale (developed in Australia) has been used in only two studies, apart from the studies to develop and refine the tool. One study involved 96 nurses in two hospitals to examine the impact of work readiness on job satisfaction, work engagement and intention to remain;[44] and the other study involved even fewer nurses (28).[32] In saying this, it needs to be borne in mind that the Work Readiness Scale is a relatively new tool.

The lack of quantitative data from research using validated work-readiness tools does not allow for comparison between the many different pre-registration nursing programs preparing students to become RNs. Some nursing programs may be preparing their graduates very well for the workplace, others may not. The evidence to identify which programs may fall into which group is simply not available. Although there may be some intuitive appeal in using a standardised examination such as the NCLEX to ensure that RNs meet a common national standard, there is a lack of evidence to indicate the impact such an examination would have on 'work readiness' (see Section 5.6). An alternative approach might be to conduct large-scale studies of work readiness every few years and use the results of those studies to not only inform what happens in the workplace but also guide improvements in the preparation of student nurses in universities.

The research on work readiness (even though much of it does not use that term) has, for many years, identified the disconnect between the expectations of students when preparing to work as an RN and what happens when they enter the workforce – the concept of reality shock addressed in the next section. This disconnect is also evident when comparing what nurses 'should' be able to do with what they are able to do. The former is most commonly detailed in the standards and competencies specified by nursing registration authorities. However, these are usually written in a way that is difficult to interpret in the workplace.

The *Registered nurses standards for practice* produced by the Nursing and Midwifery Board of Australia consists of seven standards:

1. Thinks critically and analyses nursing practice.
2. Engages in therapeutic and professional relationships.
3. Maintains the capability for practice.
4. Comprehensively conducts assessments.
5. Develops a plan for nursing practice.
6. Provides safe, appropriate and responsive quality nursing practice.
7. Evaluates outcomes to inform nursing practice.[148]

The standards contain phrases such as 'uses ethical frameworks when making decisions', 'conducts assessments that are holistic as well as culturally appropriate' and 'documents, evaluates and modifies plans accordingly to facilitate the agreed outcomes'. This language appears to have little relationship to the language used by new-graduate RNs or their colleagues when describing the skills, knowledge and attributes required in the workplace, as identified in the literature included in this review.

There may be some value in trying to reduce this disconnect as, for example, they are trying to do in the UK where the Nursing and Midwifery Council has recently published the document *Future nurse: standards of proficiency for registered nurses*.[149] The document includes an 'Annexe B: Nursing procedures' which details 'the nursing procedures that a newly registered nurse must be able to demonstrate in order to meet the proficiency outcomes, outlined in the main body of this document'.[149, p 31] To complement these nursing procedures, the document also includes an Annexe A which sets out the communication and relationship management skills required of new-graduate RNs to meet the proficiency outcomes specified in the 'future nurse' standards. Too heavy an emphasis on the nursing procedures runs the risk of not giving due recognition to the holistic and varied nature of nursing practice across diverse clinical settings. Additionally, it has the potential to reduce the nursing role to a series of mechanistic tasks. However, the list of nursing procedures provides a potential strategy to assist in 'translating' a set of standards into something which is more meaningful in the workplace.

This review describes lack of work readiness of new-graduate RNs as occurring in nine areas: clinical or technical skills; communication skills; knowledge; confidence; critical thinking; end-of-life care; inter-professional collaboration; organisational skills; and priority setting. Of these, the self-confidence of new-graduate RNs transitioning to the workplace is perhaps the most important.

The research on which this finding is based has largely relied on surveys, interviews or focus groups to investigate the perceptions of new-graduate nurses about their own skills and knowledge, or the perceptions of their colleagues. This provides useful insights into the concept of work readiness and how it manifests in practice but the lack of quantitative data has two major implications:

- It is not possible to prioritise which of these areas is more or less important than any other.
- It is difficult for policy makers and decision makers to respond with strategies to improve the work readiness of new-graduate nurses, either in a general sense or to address deficits in particular skills, knowledge or attributes.

9.2 Transition to practice

The term 'reality shock' has been used for many years to describe the 'shock' experienced by nursing students when they join the workforce and realise they have not been adequately prepared for the work that awaits them. It is difficult to escape the conclusion that very little has changed – reality shock is still alive and well.

The evidence outlined in this review indicates that the transition from student to clinician is influenced by many factors, including the personal characteristics of each nurse (e.g. prior experience, resilience), their interpersonal relationships with colleagues (which may include a fair amount of incivility), and the environmental context in which they work (e.g. staffing levels, rostering). The skills, knowledge and attributes that each nurse brings to the workplace is only one component of being able to function effectively, as reflected in the conclusion from one of the literature reviews referred to in Section 5.3.1:

> *The complex interplay between characteristics of the novice nurse, their workplace relationships, and their practice environment contribute to a variety of positive and negative transition outcomes. Improving transition into practice experiences among new graduate nurses necessitates an approach that addresses factors across all three levels of influence.*[56, p 118]

This finding has two important implications for transition programs:

- The best transition program in the world can only address some of the issues faced by new-graduate RNs.
- Transition outcomes will be influenced by much more than the structure and content of a transition program, including the personal characteristics of each RN and the culture of the workplace.

These concepts reinforce the need for employers, managers and policy makers to ensure that strategies are implemented to moderate the environment of the workplace to ensure that it is conducive to a supported transition.

The findings of this review are worth considering in the context of what is known about workplace learning. In 2007, Eraut classified learning processes in the workplace according to whether the main driver is working or learning (Table 14), based on his longitudinal study of professional learning in the first three years of employment for three cohorts: (1) newly

qualified nurses; (2) graduate engineers seeking chartered status; and (3) trainee chartered accountants.[150]

The work processes with learning as a by-product listed in the left-hand column of the table 'accounted for a very high proportion' of reported learning, with successful learning heavily dependent on favourable working relationships with colleagues. The learning processes in the right-hand column are listed in accordance with proximity to the workplace (e.g. supervision and mentoring occur in or very near the workplace). The learning activities in the central column are embedded in most work processes and learning processes, but also occurred at other times 'in short opportunistic episodes'.

Table 14 A typology of early career learning

Work Processes with learning as a by-product	**Learning Activities** located within work or learning processes	**Learning Processes** at or near the workplace
Participation in group processes	Asking questions	Being supervised
Working alongside others	Getting information	Being coached
Consultation	Locating resource people	Being mentored
Tackling challenging tasks and roles	Listening and observing	Shadowing
Problem solving	Reflecting	Visiting other sites
Trying things out	Learning from mistakes	Conferences
Consolidating, extending and refining skills	Giving and receiving feedback	Short courses
Working with clients	Use of mediating artifacts	Working for a qualification
		Independent study

Note: taken from Eraut's paper *Learning from other people in the workplace*.[150]

In the context of the finding about the critical importance of confidence in new-graduate RNs' transition to the workplace, Eraut made a key observation:

> *Much learning at work occurs through doing things and being proactive in seeking learning opportunities; and this requires confidence. Moreover, we noted that confidence arose from successfully meeting challenges in one's work, while the confidence to take on such challenges depended on the extent to which learners felt supported in that endeavour by colleagues, either while doing the job or as back up when working independently.*[150, p 417]

Eraut refers to the 'triangular relationship between challenge, support and confidence'. More recently, in her thesis, Gregory has made the point that 'learning is not planned but occurs as practices unfold and as opportunities arise for observing, receiving feedback and attending to challenging tasks under the guidance of others'.[151, p 17]

9.3 Role and effectiveness of transition programs

The structure and content of transition programs vary widely. The majority of programs, both internationally and in Australia, are 12-months long but vary in length from 6 weeks to 18 months. Clinical rotation is a common feature of transition programs, with differences in the number, selection and length of rotations. Educational content takes many forms, including didactic teaching sessions, case studies, simulations and role plays. This variation makes it almost impossible to aggregate findings about program effectiveness and to 'separate out' what improvements may be due to transition programs and what may be due to other factors.

Studies of transition program effectiveness have focused on organisational outcomes (e.g. staff turnover and retention, cost effectiveness), rather than improvements in the skills, knowledge and attributes of new-graduate nurses. This suggests that transition programs are seen more as a recruitment and retention strategy to maintain staffing levels rather than as a way of improving nursing expertise or quality of nursing care, as indicated by these comments/findings from the international literature:

- Implementing two rotations in a 12-month period rather than one rotation because that was seen as 'a more positive recruitment strategy'.[41]
- It would be fiscally irresponsible not to use transition programs as a recruitment and retention strategy.[69]
- Offering a transition program 'of any description … is enough to positively influence recruitment and retention'.[70, p 48]

It may be appropriate to shift the emphasis to have more of a focus on facilitating a supportive learning environment for new-graduate nurses. For example, a review of existing guidelines for 'facilitating transition of final year nursing students to professional nurses' found three main factors for facilitating transition:

1. Support for new graduates, which may include a designated person such as a mentor or preceptor to provide that support.
2. The need for the new-graduate nurse to feel accepted by colleagues and part of the organisation.
3. The provision of a positive learning environment.[152]

The findings of this review are consistent with all three factors.

From the perspective of transition programs, the structuring of workplace learning referred to in the previous section is interesting (Table 14). Transition programs focus on learning processes (e.g. use of mentors, study days) and provide opportunities for learning activities (e.g. opportunities for reflection, locating resource people) but the activities described as 'work processes with learning as a by-product' (e.g. working with patients, working alongside others), which account for the most learning, have little to do with transition programs. If one accepts Eraut's typology of workplace learning, the corollary is that transition programs can only ever provide part of the answer to facilitating the transition from student to practitioner and ensuring that new-graduate RNs have the necessary skills, knowledge and attributes to function effectively in the workplace.

This suggests, for example, that there may be little point in setting up an accreditation process for transition programs as, for example, happens in the US[153] when transition programs are only part of the answer to the question of how best to support the transition experience.

A framework such as that developed by Australian and New Zealand Council of Chief Nursing and Midwifery Officers may be more appropriate.[154] The principles in the framework are as follows:

- Principle 1: Successful transition requires a safe working environment which respects the individual's experience and professional scope of practice.
- Principle 2: Successful transition requires support from skilled preceptors and colleagues, who are enabled to participate in this process.
- Principle 3: Successful transition requires consolidation of clinical practice as the focus, within a positive, collaborative environment, where opportunities for experiential learning are maximised.
- Principle 4: Successful transition requires constructive feedback to be used as a positive tool to facilitate professional growth.[154]

The findings of this review are consistent with these four principles.

9.4 Utilisation of independent external assessments such as pre-registration examinations

In 2016, a comparison of accreditation systems for registered health professionals between Australia, Canada, Ireland, New Zealand, the UK and the US was undertaken by the Accreditation Liaison Group for the Australian Health Practitioners Regulation Agency.[155] It was reported that Ireland and the UK were similar to Australia for registered nurses in that there was no standardised testing required, while Canada, New Zealand and the US did have standardised testing requirements for registration/licensure (ENs or the equivalent were not included in the report).

The NCLEX used in the US and Canada is developed by the National Council of State Boards of Nursing.(NCSBN) In order to ensure the NCLEX remains valid in the changing health care environment, the NCSBN undertakes cyclical analyses of nursing practices for both RNs and the equivalent of ENs in Australia.[156,157] Prior to Canada replacing the Canadian Registered Nurse Examination with the NCLEX-RN in 2015, the NCSBN undertook a review of the applicability of the test in the Canadian test population.[158]

Despite all this work in the US and Canada, no studies were identified which demonstrated that the NCLEX improved the skills, knowledge and attributes of new-graduate RNs. Much of the focus of the literature is about how to pass the exam and the importance of pass rates for nursing faculties.

9.5 Utilisation of pre-requisites for entry to pre-registration programs

There is very limited research, particularly from Australia, on using pre-requisites for entry to pre-registration programs to improve the skills, knowledge and attributes of students completing university-based nursing programs but various potential pre-requisites have been reported in the literature (e.g. previous academic achievement; previous studies in science; proficiency in English).

The only Australian study on the issue of pre-requisites for pre-registration programs identified in this review (a survey of nurse academics) found that pre-requisite subject areas including basic knowledge of science and mathematics were important to student success.[124] The

majority of those surveyed also believed that a minimum tertiary entrance score should be set and that international students should be required to demonstrate English language proficiency equivalent to the registration standards for Australian nurses.

9.6 Enrolled nurses

Searching the literature identified no literature reviews focusing on new-graduate ENs (or their equivalent in other countries) and only five Australian studies focusing on either the skills, knowledge or attributes of enrolled nurses or transition programs for ENs.

The studies were generally small in scale and of poor quality. There is insufficient evidence from these studies to guide future interventions to improve the skills, knowledge and attributes of new-graduate ENs or design transition programs for ENs. However, there is no reason to believe that the findings regarding the transition of RNs and the best way of designing transition programs for RNs would not apply to ENs. For example, providing appropriate support in the workplace; the need to feel accepted by colleagues; and the provision of a positive learning environment.

It is interesting to note the results of a Victorian study of senior nurses which revealed 'considerable variation' in what was expected of new-graduate ENs,[33] and a perception that differences in the roles of ENs and RNs had decreased.[131] This finding highlights a potential for role ambiguity regarding the preparation of ENs and their subsequent skills and knowledge.

9.7 Nurse practitioners

In searching the literature it was apparent that there has been heightened interest in the topic of NP role transition in recent years. However, only three studies were found which investigated the experiences of transition for NPs in Australia. Although these studies were small in scale and constitute a relatively modest evidence base, many of the factors identified by NPs are very similar to the factors influencing the transition experiences of new-graduate RNs. In addition, NPs face a set of factors specific to the NP role: lack of clarity about the role of NPs; meeting the expectations of others about the role; and lack of clarity about how the role 'fits' with existing services.[140]

Two reviews of transition programs for NPs in the US were found, but neither included any information about the outcomes achieved by these programs. This may be due to the fact that transition programs for NPs are relatively new. Most of the programs are 12 months in length and are available for a diverse range of clinical specialties.

9.8 Recommended issues for further consultation

From this review of the literature various issues have emerged that are worthy of further consultation. The following questions are provided to inform that consultation. Several of these questions are more suited to discussions with particular stakeholder groups:

- What changes, if any, to pre-requisites for entry to pre-registration programs might improve the skills, knowledge and attributes of students completing university-based nursing programs?
- Transition outcomes will be influenced by much more than the structure and content of a transition program, including the personal characteristics of each RN, interpersonal relationships with colleagues and the culture of the workplace. How can support for newly registered nurses be improved, as they commence work in the Australian health system?
- Are the current expectations of employers relating to work-readiness of nurses fair and reasonable? For example, is more expected of nurses than other health professionals in terms of work-readiness of new-graduate RNs?
- How do employers assess the effectiveness of transition programs in the health care setting?
- Other countries use a standardised examination prior to registration, however there appears to be a lack of evidence to indicate the impact such an examination has on 'work readiness'. How are standardised examinations viewed by the profession?
- There appears to be a disconnect when comparing what nurses 'should' be able to do with what they are able to do. The former is most commonly detailed in the standards and competencies specified by nursing registration authorities. However, these are usually written in a way that is difficult to interpret in the workplace. How might this be improved?
- Is there value in strengthening capacity to compare university nursing programs preparing students to become RNs?
- What particular issues need to be addressed for new graduates commencing nursing employment in settings outside metropolitan acute care facilities?
- What, if anything, needs to be done for new graduates who have not completed a transition program?
- What needs to be done to provide appropriate transition support for new-graduate ENs?

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Appendix 2 Search strategy and search terms

Search terms for the international literature

Number	Search terms
1	nurs* OR "new* graduat*" OR "novice nurs*"
2	"fit for purpose" OR "fit for practice" OR "work read*" OR competen*
3	transition OR orient* OR residen* OR intern*
4	Literature review OR review of the literature OR overview OR systematic review OR meta analysis
5	1 AND 2 AND 3 and 4

Search terms for the Australian literature

Number	Search terms
1	"Enrolled Nurs*" OR EN
2	"Registered Nurs*" OR RN
3	"Nurse Practitioner" OR NP
4	"fit for purpose" OR "fit for practice" OR "work read*" OR competen*
5	transition OR orient* OR residen* OR intern* OR "new grad* program*"
6	1 AND 4 AND 5
7	2 AND 4 AND 5
8	3 AND 4 AND 5

Supplementary searches

Search	Search terms
Delphi studies focusing on skills and knowledge of nursing staff	Delphi AND nurs* AND (skills OR knowledge)
Literature reviews focusing on overseas equivalent of enrolled nurses	"licensed practical nurse" AND transition
Independent external assessments (pre-registration)	"General registration exam" AND Nursing "Credentialing examinations" AND Nursing "State Board examinations" AND Nursing NCLEX AND ("patient safety" OR "patient outcomes" OR quality NCLEX AND Canada
Pre-requisites for entry to pre-registration programs	"Admission" AND ("Criteria for undergraduate nursing program" OR "nursing admissions examination")

Appendix 3 Reasons for excluding certain literature reviews and Australian studies

Literature reviews

Authors / Year published / Title / Reference	Reason for exclusion
Ajanaku, 2018. Systematic review of nurse residency programs.[159]	This is a systematic review undertaken for a doctoral thesis. It includes 44 papers – 15 reviews of the literature, 28 studies and 1 expert opinion. All the reviews of the literature identified by Ajanaku are included in this review, except for some not considered relevant to Topic 1. All the included papers are described in some detail but there is no synthesis of the findings across studies/literature reviews. The work is therefore of limited value for Topic 1 and has been excluded on that basis.
Chen & Lou, 2014. The effectiveness and application of mentorship programmes for recently registered nurses: a systematic review.[160]	Of the 5 studies included in the review, only one was from the countries 'in scope' for this review (1 study from the US). The other 4 studies were from Taiwan (3) and Thailand (1).
Edward et al., 2017. Are new nurses work ready – the impact of preceptorship. An integrative systematic review.[161]	Included 15 papers, of which 5 did not focus on new-graduate nurses and 1 was from Finland. 4 studies undertaken in Australia and are adequately covered by the section on the Australian literature. 9 studies did not involve an intervention (e.g. a preceptorship program). This review did not materially contribute to the evidence for Topic 1.
Hickerson et al., 2016. The Preparation–Practice Gap: an integrative literature review.[162]	Included two types of studies: (1) evidence about whether new-graduate nurses are adequately prepared for practice, referred to as the 'preparation-practice gap'; (2) identified solutions to address the gap. The authors conclude that the preparation-practice gap is real and costly without providing much evidence to support that claim. They state that novice nurses 'are aware of their preparation gap and deficiencies' but don't specify what those deficiencies are. The review does not add materially to the evidence base for Topic 1.
Huston et al., 2018. The academic-practice gap: strategies for an enduring problem.[163]	This review of the literature did not meet the minimum requirements for a review to be included (specification of databases searched, search terms and inclusion/exclusion criteria).
Jewell, 2013. Supporting the novice nurse to fly: a literature review.[164]	Included 23 articles but these are not clearly identified in the paper. From the reference list, at least some of the included articles are not research studies. The two areas covered by the review (the experiences of new graduates and interventions to support new graduates) are adequately covered by more recent reviews.
Ke et al., 2017. The effects of nursing preceptorship on new nurses' competence, professional socialization, job satisfaction and retention: a systematic review.[165]	Only 2 of the 6 studies included in this review were from countries 'in scope' for Topic 1. The other 4 studies were undertaken in Taiwan and Thailand.

Authors / Year published / Title / Reference	Reason for exclusion
Labrague & McEnroe-Petitte, 2018. Job stress in new nurses during the transition period: an integrative review.[166]	This review examined the literature on job stress in new-graduate nurses. However, just over half the included studies (14/21) took place in countries considered out of scope for Topic 1, making generalisability of the results to Australia problematic. It was therefore decided to exclude this review because, as the authors noted 'culture not only determines the type of stressors that a person might likely experience, but also affects the judgement of that particular stressor' (p 501).
Mann-Salinas et al., 2014. A systematic review of the literature to support an evidence-based precepting program.[167]	Review to identify the evidence for developing a preceptorship program for nurses transitioning to burn specialty practice. No articles were found addressing the topic of the review so the authors increased the scope to include the broader literature on preceptorship. The review does not add materially to the three reviews of the preceptorship literature already included in the review and so was excluded on that basis.
Monaghan, 2015. A critical analysis of the literature and theoretical perspectives on theory–practice gap amongst newly qualified nurses within the United Kingdom.[168]	This review examined the factors and theoretical perspectives contributing to the theory–practice gap for newly qualified nurses in the UK. It did not cover the literature on the skills, knowledge and attributes of new-graduate nurses entering the workforce and only made passing references to the literature on the effectiveness of transition programs. It was therefore excluded as it lacked relevance to Topic 1.
Murray et al., 2018. New graduate registered nurses' knowledge of patient safety and practice: a literature review.[169]	Included a very eclectic mix of 45 papers. 10 studies involved student nurses and 8 studies are from countries outside those 'in scope' for Topic 1. Also included are two books, three concept analyses, one personal reflection and one guest editorial. One study involves medical students. One of the included papers reports the findings from implementation of the 'Between the flags' program in NSW which makes no mention of new-graduate nurses. The findings are not useful for Topic 1.
Poronsky, 2012. A literature review of mentoring for RN-to-FNP transition.[170]	This review did not meet the minimum requirements for including a literature review (no explanation of inclusion/exclusion criteria) and despite the title, none of the included papers focus on mentoring of NPs.
Purling & King, 2012. A literature review: graduate nurses' preparedness for recognising and responding to the deteriorating patient.[171]	The authors aimed to focus the review on the experiences of nurse graduates in recognising and responding to deteriorating patients. No such studies were found, so the review was expanded to include new-graduates' experiences of caring for at-risk acutely ill patients in complex acute care environments and more experienced RNs recognising and responding to patient deterioration. Of the 17 studies included in the review, only 4 focused on new-graduate nurses (2 from the US and 2 from Australia). These four studies are quite old (2004-2008) and there are more recent studies from Australia included in the section on the Australian literature.
Anderson et al., 2012. Nurse residency programs: an evidence-based review of theory, process, and outcomes.[172]	This review includes 20 studies of transition programs but the focus of the review was on the content of transition programs, the use of theory to guide the content of transition programs and the tools used to evaluate transition programs, rather than reviewing the evidence for transition program effectiveness.

Australian studies

Authors / Year published / Title / Reference	Reason for exclusion
Cadmus et al., 2014. Academic practice partnership: transitions into practice for new nurses.[173]	Not primary or secondary research. Focused on the US.
Christensen et al., 2016. Do student nurses experience Imposter Phenomenon? An international comparison of Final Year Undergraduate Nursing Students readiness for registration.[174]	Study includes Australia, United Kingdom and New Zealand. Data collected from final year Bachelor of Nursing students on perception of preparedness. Did not include data from graduate RNs.
El Haddad et al., 2013. Graduate registered nurse practice readiness in the Australian context: an issue worthy of discussion.[175]	Scholarly critique of the historical developments and literature on transition in the Australian context. No formal literature search described so excluded based on inclusion/exclusion criteria.
Halcomb et al., 2012. Graduating nursing students' perceived preparedness for working in critical care areas.[176]	Data collected from final year Bachelor of Nursing students on interest/intention of working in critical care settings. Did not include data from graduate RNs.
Jacob et al., 2017. Role expectations of different levels of nurse on graduation: a mixed methods approach.[177]	Data collected from final year Bachelor of Nursing students and EN students on role expectations of RNs and ENs. Did not include data from graduate RNs.
Phillips et al., 2012. Pre-registration paid employment choice: the views of newly qualified nurses.[178]	Excluded based on results of this study being presented in other studies by the same authors [64,65]
Queensland Nurses Union, 2016. Welcoming the future of nursing and midwifery.[179]	Not primary or secondary research.
Walker et al., 2015. Refinement and validation of the Work Readiness Scale for graduate nurses.[180]	Instrument Validation study (Work Readiness Scale). No primary data that meets inclusion/exclusion criteria.

Appendix 4 Journal quality report

Journals are listed alphabetically with journal impact factors/scores and category rankings.

Journal title	JCR impact factor[1]	JCR ranking[1]	JCR category[1]	CITE SCORE[2]	CITESCORE Ranking[2]	CITESCORE Category[2]
Advances in Nursing Science	0.822	87/115 90/118	NURSING - SSCI NURSING - SCIE	0.81	47/104	GENERAL NURSING
Age and Ageing	4.013	11/53	GERIATRICS & GERONTOLOGY	3.93	5/94 7/30	GERIATRICS AND GERONTOLOGY AGEING
AORN Journal	0.794	90/115 93/118	NURSING - SSCI NURSING - SCIE	0.37	12/22	MEDICAL–SURGICAL
Australian Health Review	1.036	64/79 84/94	HEALTH POLICY & SERVICES HEALTH CARE SCIENCES & SERVICES	1.09	101/216	HEALTH POLICY
Australian Journal of Advanced Nursing	0.511	106/115 109/118	NURSING - SSCI NURSING - SCIE	0.70	18/50 51/104	ADVANCED AND SPECIALISED NURSING GENERAL NURSING
BMC Nursing	Included in Emerging Sources Citation Index[3]	N/A	N/A	1.78	11/104	GENERAL NURSING
Burns	2.134	81/200 26/63	SURGERY DERMATOLOGY	1.90	9/77 72/385	EMERGENCY MEDICINE SURGERY
Clinical Simulation in Nursing	1.640	29/115 32/118	NURSING - SSCI NURSING - SCIE	1.31	3/19 246/979	NURSING (MISCELLANEOUS) EDUCATION
Collegian	1.153	60/115 63/118	NURSING - SSCI NURSING - SCIE	1.32	22/104	GENERAL NURSING
Contemporary Nurse	0.673	97/115 100/118	NURSING - SSCI NURSING - SCIE	0.90	43/104	GENERAL NURSING

Journal title	JCR impact factor[1]	JCR ranking[1]	JCR category[1]	CITE SCORE[2]	CITESCORE Ranking[2]	CITESCORE Category[2]
Home Healthcare Now	Not ranked	N/A	N/A	0.21	34/50 28/32	ADVANCED AND SPECIALISED NURSING COMMUNITY AND HOME CARE
International Journal of Mental Health Nursing	2.033	11/115 12/118	NURSING - SSCI NURSING - SCIE	1.93	6/37	PHYCHIATRIC MENTAL HEALTH
International Journal of Nursing Practice	1.142	62/115 65/118	NURSING - SSCI NURSING - SCIE	1.14	31/104	GENERAL NURSING
International Journal of Nursing Studies	3.656	1/115 1/118	NURSING - SSCI NURSING - SCIE	3.50	3/104	GENERAL NURSING
International Nursing Review	1.496	33/115 37/118	NURSING - SSCI NURSING - SCIE	1.49	19/104	GENERAL NURSING
Journal for Nurses in Professional Development	Not ranked	N/A	N/A	0.64	1/3 15/29	REVIEW AND EXAM PREPARATION LEADERSHIP AND MANAGEMENT
Journal of Advanced Nursing	2.267	7/115 7/118	NURSING - SSCI NURSING - SCIE	2.37	6/104	GENERAL NURSING
Journal of Clinical Nursing	1.635	30/115 33/118	NURSING - SSCI NURSING - SCIE	1.71	15/104	GENERAL NURSING
Journal of Continuing Education in Nursing	0.820	88/115 91/118	NURSING - SSCI NURSING - SCIE	0.60	2/3	REVIEW AND EXAM PREPARATION
Journal of Nursing Administration	1.320	45/115 49/118	NURSING - SSCI NURSING - SCIE	1.09	8/29	LEADERSHIP AND MANAGEMENT
Journal of Nursing Management	1.912	15/115 16/118	NURSING - SSCI NURSING - SCIE	2.03	1/29	LEADERSHIP AND MANAGEMENT
Journal of Nursing Regulation	Included in Emerging Sources Citation Index[3]	N/A	N/A	1.21	8/35 5/19	ISSUES, ETHICS AND LEGAL ASPECTS NURSING (MISCELLANEOUS)
Journal of Professional Nursing	1.256	49/115 52/118	NURSING - SSCI NURSING - SCIE	1.30	24/104	GENERAL NURSING

Journal title	JCR impact factor[1]	JCR ranking[1]	JCR category[1]	CITE SCORE[2]	CITESCORE Ranking[2]	CITESCORE Category[2]
Journal of the American Academy of Nurse Practitioners *see* Journal of the American Association of Nurse Practitioners	see below	see below	see below	see below	see below	see below
Journal of the American Association of Nurse Practitioners	1.136	64/115 67/118	NURSING - SSCI NURSING - SCIE	1.05	36/104	GENERAL NURSING
Journal of Teaching and Learning for Graduate Employability	Not ranked	N/A	N/A	Not ranked	N/A	N/A
MedSurg Nursing	Not ranked	N/A	N/A	0.47	10/22	MEDICAL AND SURGICAL NURSING
Nurse Education in Practice	1.313	47/115 50/118	NURSING - SSCI NURSING - SCIE	1.54	18/104 199/979	GENERAL NURSING EDUCATION
Nurse Education Today	2.067	10/115 10/118	NURSING - SSCI NURSING - SCIE	2.11	8/104 92/979	GENERAL NURSING EDUCATION
Nursing and Health Sciences	1.237	53/115 56/118	NURSING - SSCI NURSING - SCIE	1.31	23/104	GENERAL NURSING
Nursing Administration Quarterly	Not ranked	N/A	N/A	0.45	17/29	LEADERSHIP AND MANAGEMENT
Nursing Education Perspectives	Included in Emerging Sources Citation Index[3]	N/A	N/A	1.21	27/104 269/979	GENERAL NURSING EDUCATION
Nursing Ethics	1.876	16/115 17/118	NURSING - SSCI NURSING - SCIE	1.58	4/35	ISSUES, ETHICS AND LEGAL ASPECTS

Journal title	JCR impact factor[1]	JCR ranking[1]	JCR category[1]	CITE SCORE[2]	CITESCORE Ranking[2]	CITESCORE Category[2]
Nursing Forum	Included in Emerging Sources Citation Index[3]	N/A	N/A	1.17	30/104	GENERAL NURSING
Nursing Inquiry	1.159	59/115 62/118	NURSING - SSCI NURSING - SCIE	1.44	20/104	GENERAL NURSING
Nursing Outlook	2.425	4/115 4/118	NURSING - SSCI NURSING - SCIE	1.73	12/104	GENERAL NURSING
NursingPlus Open	Not ranked	N/A	N/A	2.11	8/104	GENERAL NURSING
Nursing Research	1.725	24/115 27/118	NURSING - SSCI NURSING - SCIE	1.73	12/104	GENERAL NURSING
Oxford Review of Education	1.393	112/238	EDUCATION & EDUCATIONAL RESEARCH	1.75	150/979	EDUCATION
The Journal for Nurse Practitioners	Not ranked	N/A	N/A	0.28	31/50	ADVANCED AND SPECIALISED NURSING
Western Journal of Nursing Research	1.323	44/115 48/118	NURSING - SSCI NURSING - SCIE	1.07	35/104	GENERAL NURSING
Worldviews On Evidence-Based Nursing	2.143	8/115 8/118	NURSING - SSCI NURSING - SCIE	2.35	7/104	GENERAL NURSING

[1]Journal Citation Reports 2017. Available from InCites Journal Citation Reports website[1]
[2]CiteScore™ 2017. Available from Scopus website[2]
[3]Emerging Sources Citation Index. Available from Clarivate Analytics website[3]

Journal Citation Report (JCR) impact factor

The JCR impact factor shows how often the average article is cited in a given journal, based on a two-year window. JCR impact factor uses Web of Science data.

[1] https://jcr.incites.thomsonreuters.com

[2] https://www-scopus-com.ezproxy.uow.edu.au/sources.uri?zone=TopNavBar&origin=sbrowse

[3] http://mjl.clarivate.com/cgi-bin/jrnlst/jlresults.cgi?PC=EX

2017 Journal Impact Factor = (2017 citations to items in 2016 + 2017 citations to items in 2015) / (citable items in 2016 + citable items in 2015).

More information: View the Journal Citation Reports: A Primer on the JCR and Journal Impact Factor (PDF, 344Kb)[4]

CiteScore

CiteScore shows how often the average article is cited in a given journal, based on three-year window. CiteScore uses Scopus data.

2017 CiteScore = Citation count 2017 / Documents published 2014 – through to 2016

More information: Journal Metrics - FAQs website[5]

[4] https://clarivate.com/wp-content/uploads/2017/10/JCR_Primer.pdf
[5] https://journalmetrics.scopus.com/index.php/Faqs

Glossary of terms

Term	Definition
Enrolled Nurse (EN)	The enrolled nurse works with the registered nurse as part of the health care team and demonstrates competence in the provision of person-centred care. Core practice generally requires the EN to work under the direct or indirect supervision of the RN…ENs engage in analytical thinking, use information and/or evidence, and skilfully and empathetically communicate with all involved in the provision of care, including the person receiving care and their family and community and health professional colleagues.[181] Also known in other countries as: ▪ Diploma Nurse ▪ Diploma-Prepared Nurse ▪ Licensed Practical Nurse ▪ Licenced Vocational Nurse ▪ Practical Nurse ▪ Registered Practical Nurse
National Council Licensure Examination (NCLEX)	A nationwide exam for the licensing of nurses in the United States and Canada that is administered by the National Council of State Boards of Nursing.
Nurse Practitioner (NP)	The nurse practitioner is an advanced practice nurse endorsed by the Nursing and Midwifery Board of Australia who has direct clinical contact and practises within their scope under the legislatively protected title 'nurse practitioner' under the National Law.[182] Also known as an Advanced Practice Nurse (note there is inconsistency in the use of this title and can also refer to registered nurses who perform at a high level).
Registered Nurse (RN)	Registered Nurse practice is person-centred and evidence-based with preventative, curative, formative, supportive, restorative and palliative elements.[148] Also known in other countries as: ▪ Baccalaureate-Prepared Nurse ▪ Baccalaureate Nurse